NEW REMEDIES

AN ILLUSTRATED MONTHLY TRADE JOURNAL

OF

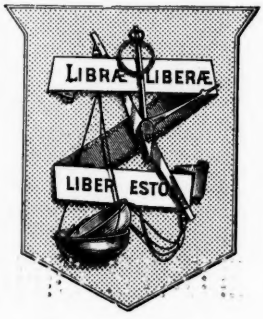
638

Materia Medica, Pharmacy and Therapeutics

FRED'K A. CASTLE, M.D.,
PHYSICIAN TO THE PRESBYTERIAN HOSPITAL AND TO THE DEPARTMENT FOR MEDICAL AND SURGICAL RELIEF OF OUT-DOOR POOR,
EDITOR

CHARLES RICE, PH.D.,
CHEMIST OF THE DEPARTMENT OF PUBLIC CHARITIES AND CORRECTIONS, ETC.,
ASSOCIATE EDITOR

VOL. X



Azor Thurston

WILLIAM WOOD & COMPANY
PUBLISHERS
27 & 29 GREAT JONES STREET, NEW YORK
1881

RS1*
A515
v.10

OHIO STATE
UNIVERSITY

NEW REMEDIES.

VOL. X., NO. 1. JANUARY, 1881. WHOLE NO. 79.

MATERIA MEDICA, PHARMACY, AND THERAPEUTICS.

The Curare of French Guiana.

BY G. PLANCHON.*

AT the mouth of the river Amazon, close to its immense delta, are seen on the map of La Condanime the mouths of two other rivers, the courses of which are only laid out for a short distance. The one to the east is the "Yari," the other the "Paru" or "Parou." These rivers have been recently explored by Dr. J. Crévaux; first in the journey made by him in 1876–'77, from the shores of the sea of the Antilles to the Amazon, across the mountain ranges, of which the higher part of French Guiana consists; and again, latterly, in 1878–79.

FIG. 1.—Strychnos Crevauxii.

The latter stream runs parallel with the "Yari," from which, at its source, it is but a two days' walk distant. Low hills separate the two springs.

The upper part of the river is inhabited by the "Trio" and "Roucouyennes" Indians. In this region Mr. Crévaux has seen the *Ourari* prepared, with which they poison their arrows, principally used in hunting a large black ape called the Couata.

In a letter written to Mr. Leroy de Mericourt, on Jan. 15th, 1879, Mr. Crévaux inclosed a photograph of a plant called, like its extract, *ourari*, and added:

"I believe that in this we have the real poison, for the juice of the root, steeped in brandy, produced on various animals absolutely the same effects as the curare heretofore known.

"The poison is principally derived from the juice extracted from the root of the *ourari* plant. To this extract are added the juices of other plants that have no poisonous properties (as was proved by experiments on men and animals). To prepare the poison, the Indians that I have seen, soak the root, remove the bark with a knife, and press out the juice with their hands. This juice, with the addition of other unimportant ingredients (pepper among others) is very gently heated, and dried in the sun.

"The juice of the root is very bitter, and

* From *Journal de Pharm. et de Chim.*, July, 1880.

318354

stains the hands brown like tincture of iodine; it can be handled with impunity, provided one has no scratches."

We have before said that the plant, first photographed and then brought to Europe by Mr. Crévaux, is a new kind of Strychnos, to which the name of *Strychnos Crevauxii* has been given. The following are its characteristics and appearance:

It is a climber, growing to the height of forty or forty-five meters. The trunk bears numerous branches (Fig. 1), provided, at intervals, with spirally twisted tendrils, thickened somewhat at their ends. The smaller branches are covered with short yellow hairs. The leaves of moderate thickness, coriaceous, are from five to eight centimeters long, elliptical, lanceolate, short taper pointed, generally provided with a short petiole of four or five millimeters. The upper surface is glabrous and shining; the lower, dull, also glabrous, except the stronger veins, which have hairs sparsely attached. From the lower end of the middle vein two well-defined small veins arise and follow the edges, and at a certain height two others, more strongly marked, curve toward the point. The inflorescence (Fig. 2) is axillary, much shorter than the leaves, with opposite bracts, carrying small pedicelled flowers. The flowers (Figs. 3 and 4) have a calyx with five lanceolate sepals, a funnel-shaped corolla, much longer than the calyx, forming five petals, which are turned backward and outwards, and are covered on their internal surface with whitish hairs; five stamens with adnate anthers. The ovule is globular, surmounted by a long style, slightly dilated, and bilobed at the top.

One rather curious peculiarity of this species is the existence of small branchlets, more or less forked, very slender, which often appear at the axis of the leaves. The stem of these branchlets, as well as the small opposite leaflets, which are but two or three millimeters long, are covered with little curved hairs.

Mr. Crévaux has sent with the plant part of the root and stem. The piece of root received was two and one-half centimeters in diameter. The bark is a uniform reddish-brown, marked by several longitudinal ridges, rather regularly arranged with circular stripes and fissures. Within this thin bark (1 mm.) is an extremely porous wood, marked with numbers of fine radial striæ; no trace of pith. The anatomical structure of the bark is that of *Strychnos*.

The wood is remarkable for the number and size of the ducts which form the numerous orifices visible to the naked eye. These ducts often show inside large meshes in form of an irregular net, and do not contain resinous matter. The medullary rays, very numerous and well developed, and the woody parenchyme, which forms concentric circles, contain crystals in their cells, but chiefly a quantity of grains of starch, like those in the bark.

The stem of *Strychnos Crevauxii* (which was received) measures nine centimeters in diameter. The bark, very thin, for it is scarcely two millimeters thick, is of a whitish-gray, brown on the ridges, where the outer tissue has been removed by friction. It is warty, marked with slight irregular elevations, placed lengthways. The wood is gray, and pierced by an infinite number of pores, still more so than the root. The ducts present the same tissue inside, the medullary rays and the woody parenchyma are both filled with starch grains, so that when any part of these ligneous layers is touched with solution of iodine, a dark-blue, almost black spoot appears immediately.

FIG. 2.

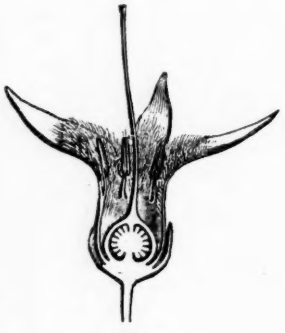


FIG. 3.

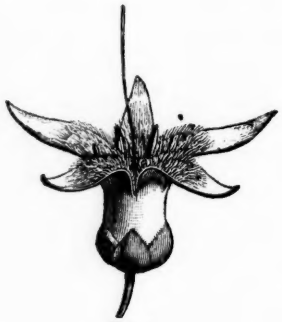


FIG. 4.

So far as our present knowledge extends, there are four different sections of northern South America where curare is prepared, and in each of these sections a different kind of *Strychnos* is used as the source of the poison. These four sections, from west to east, are the following:

1. The region of the upper Amazon, the largest of all, comprising the rivers Solimoens, Javiri, Iça, and Yapura. It furnishes the curare of the Ticunas, Pebas, Yaguas, and Oregones. This is prepared from *Strychnos Castelnæana* Wedd.

2. The region of the upper Orinoco to the Rio Negro. This contains the district visited by

Humboldt in 1800. It furnishes the curare of the Maquiritaras and Piaroas, which is derived from *Strychnos Gubleri*.

3. The region of British Guiana, furnishing the curare of the Macusis, Orecumas, and Wapisianas. This is derived from *Strychnos toxifera* Schomb., including *Str. Schomburgkii* Kl. and *Str. cogens* Benth.

4. The region of Upper French Guiana (upper Paru) furnishing the curare of the Trios and Roucouyennes, which is derived from *Str. Crevauxii* Baill., described above.

Urare.

MR. MONTAGUE FLINT, F.R.G.S., in *Temple Bar*, gives an account of the circumstances attending the preparation of urare or wourali by the Macusis of the Canuca mountains.* The people of this tribe say they are the sole makers of this subtle and renowned poison, and even of the Macusis only a few know how to prepare it. It is accounted a great secret, and is imparted from father to son, or next male heir, when the former is believed to be at the point of death. The process of manufacture is carried on at comparatively rare occasions, and is surrounded with great solemnity. For ten days previous to the first boiling down, all the men who are to take part in it are supposed to fast, and all the women of the tribe are carefully kept out of the way. The long arrows the natives use with the bow are sometimes dipped in the poison, and a small tube of bamboo placed over the tip to prevent any one being accidentally pricked by it. The blow-pipe arrows or shafts, mentioned by Waterton and others, are thin slips of hard wood, made from the stem of the leaf of the "Cucurite" palm. They are generally from twelve to eighteen inches in length, sharpened at one end, and wrapped round at the other with common cotton, or with the brown silk-like cotton of the silk-cotton tree. The sharp points are dipped in the urare or wourali, which is of the color and consistence of melted glue. These they carry in a wicker case, shaped like a dice box, but larger, very closely woven, and with a leather top and bottom, the top opening on a leathern hinge. The length of the blow-pipe itself varies from twelve to fifteen feet. Thus equipped they range through the forests shooting monkeys, birds, or such other animals that come in their way. The only antidote to the poison they are in the habit of using is a kind of earth-worm, well known to them, and common enough in these parts. Should any of them be so unfortunate as to get scratched, a hasty search is made for some of these worms, which are pounded together, a portion being used to anoint the wound, and the rest swallowed by the patient.—*Lancet.*

*The description given by the author differs considerably from that given by others. Compare NEW REMEDIES, 1877, 219; 1878, 113.

Insecticidal Plants and their Cultivation.

THE use of "insect-powder" against vermin of all kinds had been known to the inhabitants of the regions along the lower Danube and on the eastern shores of the Mediterranean for a long while before it found its way to the west. The great demand after it has not only raised the genuine article greatly in price, but has at the same time been a fruitful inducement for adulteration and substitution.

The so-called Persian insect-powder is obtained from the flowers of *Pyrethrum carneum* M. B., growing in the Caucasus and all the mountainous districts between the Caspian and Black Sea; also further east and south. Its natural home are rocky regions and barren drifts at an altitude of 1,800 to 5,500 feet. *Pyrethrum Wilmoti* is likewise used. Plants which are raised in gardens, for ornamental purposes, were found to be less effective than those obtained wild. If the plant is to be cultivated, it would, therefore, be necessary to sow the seed upon arid stony hills, corresponding in height and climatic conditions to the original home of the plant

The most effective insect-powder is the Dalmatian, which is obtained by powdering the flowers of *Chrysanthemum cinerariæfolium* Treviranus var. *rotundifolium*. Hager states that this is less effective than the Persian, which is doubtful. Mr. H. Jäger, of Essenbach, states in *Die Natur*, 1880, p. 458, that the only place where reliable seed may at present be obtained is the Imperial Botanic Garden in Vienna, which, however, does not sell, but may give it in exchange or free on application. It is also probable that the well-known firm of Fr. Wilhelm in Vienna may be able to procure reliable seed. This plant flowers during June and July in northern localities, further south already in May. The ripe flowers must be picked off daily as soon as the dew has dried up; over-ripe and fading flowers may be put up as a second quality. It is best to buy the flowers unpowdered, to guard against adulteration, which is commonly done by admixture of the very similar flowers of another plant commonly growing in the same localities, namely *Anthemis Cota* (not *Cotula*, L.).

It does not seem to be a difficult matter to attempt the cultivation of the above plants, in suitable localities, in this country. A considerable revenue would no doubt be derived by any one who would succeed in the undertaking. Some of our friends and correspondents in the Western States might take this hint and see what can be done.

Dr. George Ross, of Lebanon, Pa., died at his home after a sudden and brief illness, on Nov. 30th, 1880. The deceased was a most active and enterprising pharmacist, and a man of sterling integrity. His loss is severely felt by all those who knew him.

[Original Communication.]

DIALYZED IRON.

BY R. ROTHER.

The fact seems to be not widely known that the so-called dialyzed iron of the market is not prepared by dialysis. It is nevertheless the veritable article as produced by the dialytic process, but obtained by a much improved method, which dispenses with the diffusion drum. The new operation consists in mixing a small proportion of chlorhydric acid with washed ferric hydrate, precipitated by ammonia, and setting the mixture away for about 3 weeks, when the clear solution is decanted from a slight residue and is then ready for use. This knowledge, however, is so special and is kept so sedulously secret by the manufacturing fraternity that a practical chemist of much experience, on entering another establishment, was laughed at for his simplicity when he proposed to make dialyzed iron by dialysis. The writer himself obtained this knowledge from one of the initiated only after having proposed his own method as being new and important, and incidentally said, as much superior to the manufacturers' process as this is to dialysis. The writer was at the same time informed that, if the factories were restricted to dialysis for their product, they could not begin to supply the demand; which shows that dialyzed iron must be very salable goods.

Before proceeding with the exposition of his process, the writer will first discuss a few points in the nomenclature and notion of this subject.

According to the new chemistry, the terminology and notation are chiefly based upon the valency, apparent or real, of the elements. This admirable plan is not yet by any means perfected, but is even unaccountably encumbered by various ambiguities and conspicuous inaccuracies, which long since should have been remedied. Prominent among these is the term anhydride, generally and erroneously used to indicate either a basic or acid oxide. If there attaches any meaning to words, an anhydride would indicate a compound deprived of its constituent hydrogen. For instance, sulphur and phosphorus are the anhydrides of hydric sulphide (H_2S) and hydric phosphide (H_3P) respectively. And dimethyl or ethane (C_2H_6) is the partial anhydride of methane (CH_4). But according to the accepted terminology, the anhydrides of hydric sulphate (H_2SO_4) and hydric phosphate (H_3PO_4) are not SO_4 and PO_4 but SO_3 and P_2O_5, that is, the hydrides, not alone deprived of hydrogen, but also of oxygen in equivalent proportion, in other words freed from the elements of water or dehydrated. Consequently an anhydride ambiguously means an anhydrate.

It certainly is not correct to say potassium hydrate [K(OH)], calcium hydrate [$Ca(OH)_2$], etc., since that would indicate the hydrate of an elementary radicle which is not the case. It has, therefore, been proposed of late to call them hydroxides, a term consistent with the notation and more in harmony with fact. But even this nomenclature cannot obviate the necessity of terming acid and basic oxides anhydrates. Yet a distinction is endeavored to be made between hydroxides properly so-called, and salts which crystallize with water, designating the latter only as hydrates. A salt freed from water of crystallization would accordingly be styled an anhydrate, whilst a hydroxide freed from water is an anhydride. This attempt at a fundamental distinction is, however, utterly erroneous, as will be presently seen.

The formula of water may be written H(OH) a hydroxide of hydrogen or hydric hydroxide. Now it would be as incorrect to call this hydrogen hydrate as to say that K(OH) is potassium hydrate, in fact the errors are analogous. It is, however, perfectly correct to say that H(OH) is hydric hydrate belonging to the general class hydrates, of which potassic hydrate, ferric hydrate, etc., are particular members, whose special characters are due to the nature of the metallic radicle replacing the hydrogen.

A fundamental distinction is also made between two classes of salts, denominating them as basic or acid salts, according to whether the normal salt has attached to it basic oxide, hydrate, or both, or either acid oxide, hydrate, or both. Salts containing excess of acid oxide are further distinguished as anhydro-salts. The formulas for these compounds as generally written are crudely analytic and represent an irregular order of union between heterogeneous molecules, apparently at variance with the law of valence. The writer will now, however, show, as already announced above, that no such deviation exists, and that all such combinations, inclusive of those of the water of crystallization, are all subject to the law of atomicity and the principle of the coalescence of the same kind or similar molecules. This method of notation in contradistinction with the now prevalent one is intensely synthetic and at the same time comprehensibly analytic. The union between the ultimate realities composing an elementary molecule represents a degree of force of the highest intensity. But in the union between such molecules the original force by continued subdivision, according to the degree of complexity of the compound molecule, is proportionately weakened through all stages of transition down to the lowest order of stability. Now, considering that iron is undoubtedly hexadic, then the ferric molecule may be written Fe^{VI}_2, indicating that the two Fe's are united by six links or subdivisions of the primitive intramolecular force (not to be understood as a force of traction). In ferric chloride Fe_2Cl_6 or $Cl_3Fe{=}FeCl_3$ three of the links are externally distributed among the chlorine, whilst three remain intramolecular. But if we now substitute eight-

ninths ($\frac{8}{9}$) of the chlorine with hydroxyl, then we must employ a triple ferric molecule to represent the change, thus, $(Fe_2)_3Cl_2(OH)_{16}$ or $Fe_3Cl(OH)_8$. In this instance, the intramolecular links are redistributed so as to connect the three ferric molecules. This redistribution of the links of valence among multiple molecules is in most cases graphically representable, but may also reach an extreme degree of diffusion as in the absorption of water of crystallization. These synthetic formulas are remarkable for their compactness and convenience of manipulation. Thus, the so-called acid potassium acetate is written $KH(C_2H_3O_2)_2$ instead of $KC_2H_3O_2.H,C_2H_3O_2$. The so-called di and triplumbic acetates $Pb(C_2H_3O_2)_2.Pb(OH)_2$ and $Pb(C_2H_3O_2)_2.2(Pb(OH)_2)$ are $Pb(C_2H_3O_2)(OH)$ and $Pb_3(C_2H_3O_2)_3(OH)_4$. The ferric acetate of the German Pharmacopœia $2Fe(C_2H_3O_2)_3.Fe(OH)_3$ is $Fe_2(C_2H_3O_2)_4(OH)_2$. Potassium anhydrochromate $K_2CrO_4.CrO_3$ is $Cr_2O_5(KO)_2$ and the phosphoric acids HPO_3, $H_4P_2O_7$ and H_3PO_4 are $P_2O_4(OH)_2$, $P_2O_3(OH)_4$ and $P_2O_2(OH)_6$. Whilst the present formulas of the phosphoric acids are absolutely right, they are yet relatively wrong, since if pyrophosphoric acid is tetrabasic, the ortho-acid must be hexbasic and the meta dibasic. This incongruity the writer had already pointed out some years ago.

The nomenclature used with these proposed synthetic formulas is in conformity with the notation. All salts containing hydroxyl, and no matter whether so-called acid or basic, are termed hydro-salts, the basic or acid nature being inferable from the structure as determined by the valence of the radicles. Thus $Fe_2CO_3(OH)_4$ is called ferric hydrocarbonate, $Fe_2Cl(OH)_5$ ferric hydrochloride, $(Fe_2)_3Cl_3(OH)_{16}$ triferric hydrodichloride, and $(Fe_2)_3(NO_3)_2(OH)_{16}$ triferric hydrodinitrate.

The reason why ferric hydrate precipitated by ammonia dissolves so slowly in acids is due to the fact, as the writer has elsewhere shown, that it is an oxyhydrate ($Fe_2O(OH)_4$) which in order to be decomposed by acids must first be changed into the normal hydrate by the addition of a molecule of water. The reason for the insoluble residue remaining is that all monad salts, (ammonium chloride excepted), especially sulphates, precipitate the ferric hydro-salts, and that therefore the insoluble residue corresponds to the amount of monad salt adhering to the ferric oxyhydrate used. The dialyzed iron of the market is usually represented to contain a certain per cent of ferric oxide purporting to be in the colloidal or soluble state, no mention being made of any chlorine present. Strictly speaking, however, no colloidal ferric hydrate or oxide really exists. The compound, in order to possess solubility, must contain a certain proportion of chlorine, that is, must be a hydro-salt. Deprive the dialyzed iron of its chlorine, and insoluble hydrate or oxyhydrate will result.

After the successful application of ferric hydrocarbonate in the preparation of ferric citrate and hydro-acetate, the writer used it in the preparation of the official solution of ferric nitrate. In the act of dissolving the ferric hydrocarbonate, it was noticed that much less than the normal quantity of nitric acid sufficed to effect a solution of all the carbonate. This liquid, having an unusually deep-red color, was submitted to a prolonged boiling heat, with the expectation of precipitating a so-called basic nitrate. No such result happening, the writer then subjected the German solution of ferric acetate, prepared from ferric hydrocarbonate and glacial acetic acid, to the same treatment and obtained a like result, no precipitation taking place. Chlorhydric acid was then employed in one-sixth the normal amount, aiming at the ferric hydrochloride $Fe_2Cl(OH)_5$. On the application of heat, solution resulted almost instantly with copious effervescence of carbonic oxide. The deep brown-red liquid, when evaporated to a syrupy consistence and spread on plates to dry, yielded similarly colored non-deliquescent scales of great solubility. Chlorhydric acid in one-ninth the normal amount and the use of heat gave a similar solution of triferric hydrodichloride $Fe_6Cl_2(OH)_{16}$ which readily yielded soluble scales. Chlorhydric in one-twelfth the normal proportion and the use of heat formed a solution at first which on continued absorption of iron ultimately gelatinized from the effects of heat. It appears, therefore, that among these compounds there is limit to the stability under heat. Nitric acid readily forms hydro-salts analogous and similar to the preceding. Acetic acid (glacial) cannot effect a solution in less than one-third the normal amount. But in this proportion it gives ferric hydro-diacetate $Fe_2(C_2H_3O_2)_5(OH)_1$ which contains only half as much acetic acid as the German preparation. It is perfectly stable under heat, but yields a scaled salt which does not redissolve without decomposition. Sulphuric acid is anomalous, it produces with difficulty the salt $Fe_2(SO_4)_2(OH)_2$ which differs by only one-fifth less sulphuric acid than Monsel's salt. The writer will state in this connection that by the addition of ammonium sulphate to Monsel's solution an iron alum in abundant beautiful white crystals was obtained, showing that the mother liquor must have contained a hydro-salt having proportionably less acid than the original liquor.

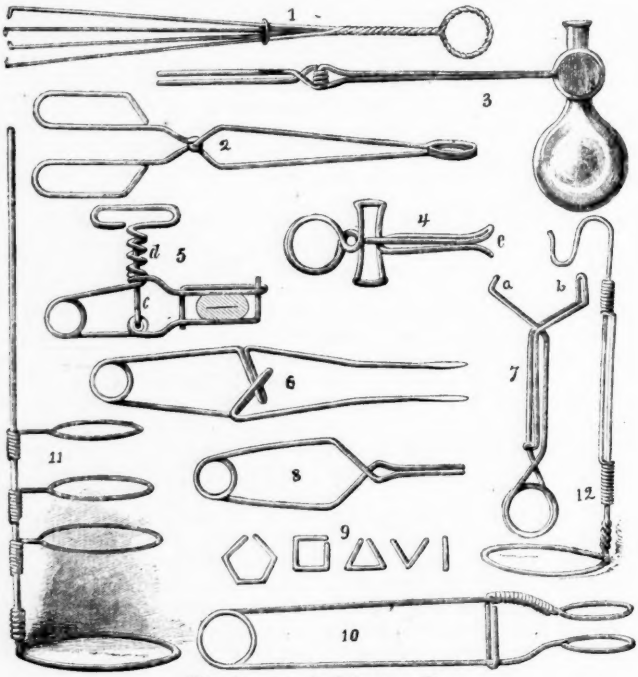
As a substitute for the dialyzed iron of the maket, the writer now proposes a solution of triferric hydrodichloride equivalent in iron strength to the official solution of ferric sulphate. Its preparation is as follows: Upon 15 troy ounces of disodic carbonate pour half a pint of water and apply heat until a hot solution is obtained, then pour into this one pint of solution of ferric sulphate in a rapid and continuous stream and with constant stirring of the mixture. Keep up the heat a few minutes until effervescence nearly

ceases, and add water to the measure of 2 gallons. After a sufficient repose, decant the supernatant liquid and wash the precipitate three or four more times in a similar manner or until the washings yield no trace of reaction with barium chloride. Collect the ferric hydrocarbonate upon a filter, and when the excess of water has drained away, dissolve it in one troy ounce of chlorhydric acid with the aid of heat and evaporate to the measure of one pint if necessary.

DETROIT, MICH.

Wire Apparatus for Laboratory Use.

MR. GEO. M. HOPKINS describes in the *Scientific American* the general construction from wire of a number of handy articles for use in laboratories, which we here reproduce. Several of them are quite novel, and they will all be found to be more or less useful. The skill acquired in making them will doubtless enable many of our readers to invent others suited to particular needs. Mr. Hopkins says he has often been able to make in this manner a piece of apparatus in the time required to order or send for it, thus saving both time and expense.



Wire Apparatus for Laboratory Use.

For most of the articles some unoxidizable wire should be selected, such as brass or tinned iron, and the tools for forming these articles of wire consist of a pair of cutting pliers, a pair of flat and a pair of round-nosed pliers, a few cylindrical mandrels of wood or metal, made in different sizes, and a small bench-vise. Any or all of the articles may be made in different sizes and of different sizes of wire for different purposes.

The cork puller shown in Fig. 1 is old and well known, but none the less useful for removing corks that have been pushed into the bottle, and for holding a cloth or sponge for cleaning tubes, flasks, etc.

Fig. 2 shows a pair of hinged tongs, which are useful for handling coals about the furnace, for holding a coal or piece of pumice stone for blowpipe work, and for holding large test tubes and flasks, when provided with two notched corks, as shown in Figs. 3 and 19. These tongs are made by first winding the wire of one half around the wire of the other half to form the joint, then bending each part at right angles, forming on one end of each half a handle, and upon the other end a ring. By changing the form of the ring end the tongs are adapted to handling crucibles and cupels and other things in a muffle.

Fig. 4 shows a form of pinch-cock. It is provided with two thumb pieces, which are pressed when it is desired to open the jaws.

Fig. 5 shows a clamp or pinch-cock, having a wire, *c*, hooked into an eye in one side, and extending through an eye formed in the other side. This wire is bent at right angles at its outer end to engage a spiral, *d*, placed on it and acting as a screw. The open spiral is readily formed by

wrapping two wires parallel to each other on the same mandrel, and then unscrewing one from the other. The handle will, of course, be formed by aid of pliers.

Fig. 6 represents a pair of tweezers, which should be made of good spring wire flattened at the ends.

Fig. 7 is a pinch-cock for rubber tubing; its normal position is closed, as in the engraving, but the end, *a*, is capable of engaging the loop, *b*, so as to hold the pinch-cock open.

Fig. 8 shows a spring clamp for holding work to be soldered or cemented. It may also be used as a pinch-cock.

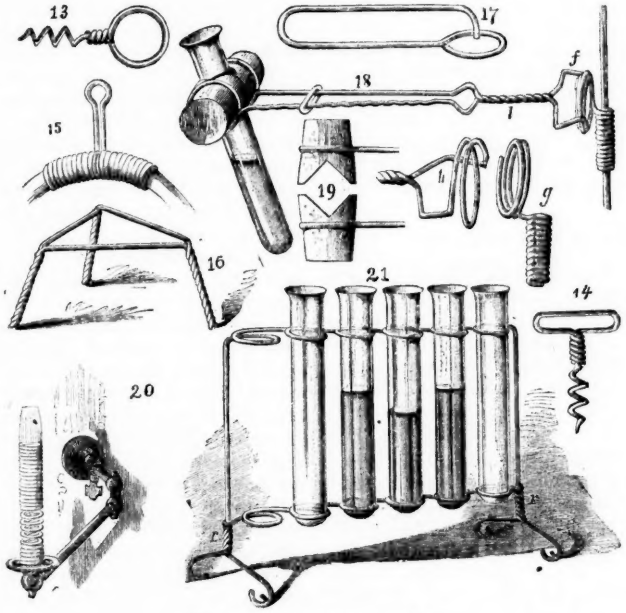
Fig. 9 shows a set of aluminium grain-weights in common use. The straight wire is a one-grain weight, the one with a single bend is a two-grain weight, the one having two bends and forming a triangle is a three-grain weight, and so on.

Fig. 10 shows a pair of spring tongs, the construction of which will be fully understood without explanation. It may be said, however, that the circular spring at the handle end is formed by wrapping the wire around any round object held in the vise; the rings at the opposite end are formed in the same way. The best way to form good curves in the wires is to bend them around some suitable mandrel or form.

Fig. 11 is shown clearly enough to require no explanation. Should the friction of the spiral on the standard ever become so slight as to permit the rings to slip down, the spirals may be bent laterally, so as to spring tightly against the standard.

Fig. 12 shows a stand adjustable as to height for supporting the beak of a retort, or for holding glass conducting or condensing tubes in an inclined position. The little cork-screws represented in Figs. 13 and 14 are articles now literally turned out by the million. It is a great convenience to have one of these inexpensive little cork-screws in every cork that is drawn occasionally, thus saving the trouble of frequently inserting and removing the cork-screw.

A very useful support for flexible tubes is shown in Fig. 15. It consists of a wire formed into a loop and having its ends bent in opposite directions to form spirals. A rubber tube supported by this device cannot bend so short as to injure it.



Wire Apparatus for Laboratory Use.

Fig. 16 is a tripod stand, formed by twisting three wires together. This stand is used for supporting various articles, such as a sand-bath or evaporating dish, over a gas flame. It is also useful in supporting a charcoal in blow-pipe work.

Fig. 17 is a clamp for mounting microscope slides, and for holding small objects to be cemented or soldered.

Fig. 18 is an adjustable test tube-holder, adapted to the standard shown in Fig. 11, and capable of being turned on a peculiar joint, so as to place the tube in any desired angle. The holder consists of a pair of spring-tongs, having eyes for receiving the notched cork, as shown in

Fig. 19. One arm of the tongs is corrugated to retain the clamping ring in any position along the length of the tongs. The construction of the joint by which the tongs are supported from the slide on the standard is clearly shown in the figures below. It consists of two spirals, *g*, *h*, the spiral, *h*, being made larger than the spiral *g*, and screwed over it, as shown in Fig. 18. This holder is very light, strong, and convenient.

Fig. 20 shows a Bunsen burner, formed of a common burner, having a surrounding tube made of wire wound in a spiral, and drawn apart near the top of the burner to admit the air, which mingles with the gas before it is consumed at the upper end of the spiral.

Fig. 21 shows a stand for test tubes. The wire is formed into series of loops and twisted together at *r* to form legs.

Most of the articles described above may be made to the best advantage from tinned wire, as it possesses sufficient stiffness to spring well and at the same time is not so stiff as to prevent it from being bent into almost any desired form. Besides this the tin coating protects the wire from corrosion and gives it a good appearance.

Treatment of Rhus-Poisoning.

Dr. W. R. D. Blackwood, having suffered personally four attacks of rhus-poisoning, gives in the *Phila. Med. Times* his experiences therewith. Speaking of treatment, he declares that the only things he has found serviceable are lime-water and galvanism. A lump of lime, the size of a lemon, in two quarts of water is sufficiently strong, and the parts should be thoroughly bathed, the mixture being stirred each time. Be careful not to let it get into the eyes. It is better to wet the parts repeatedly, allowing them to dry somewhat, than to keep wet cloths on. While applying the galvanic or faradic currents to one hand he has experienced perfect freedom from itching, the other hand being extremely troublesome if not included in the circuit. Mild currents suffice, and the longer the application the more extended the relief afterwards. With galvanism the current should not be interrupted.

Mercurial Ointment in Rolls.

Eugen Dieterich, of Helfenberg, has devised a new way of putting up mercurial ointment for the market. Immediately after its preparation is finished it is formed into rolls, and the latter are, by a mechanical contrivance, covered by a spirally coiled strip of parchment-paper. This strip is provided on both ends with an adhesive substance, so that, in order to uncover the roll, the end need only be dipped into water to soften the mucilage, when the strip may be uncoiled.—*Pharm. Centralhl.*, 1880, No. 44.

Commercial Notes on Opium.*

Among the many productions of Anatolia, nothing is so important, from a commercial point of view, as that most precious export, opium.

Asia Minor is the most northern part of the vast regions adapted to the cultivation of the poppy. From the East Indies this cultivation has gradually extended to Egypt, Algiers, Anatolia, and lastly to Persia, where, towards the close of the last century, the Dutch Colony, the members of which mostly had important establishments in Asia Minor, introduced the poppy. The Society of Commerce of the Netherlands, which had frequent dealings with the Dutch colonies in India and Java, gave the first impulse to this great trade. Even now this society buys about a quarter of the regular crop, to cover the requirements of its commerce in the Indian archipelago. Formerly opium was only used by smokers, and exclusively by Asiatics.

Opium requires a sandy clay soil, which must not have lain fallow, but be prepared for this crop the year before. If the land has not been already manured, it should be well fertilized with stable manure, and ploughed twice, the second time at right angles to the first. The seed is put in the second furrow which should not be too deep. In order to cover the seed lightly, a tree, with all its branches, is dragged across the field thus tilled, by oxen. But care must be taken that the soil does not become too wet in the interval between the cultivation and the sowing, and that the covering is but light. The light-colored seeds are preferred, that is those which are yellow or white. They produce plants with white and yellow flowers, and vigorous poppies, which yield an abundant juice and a clear gum, while the gray or black seeds, which have blue and dark-red flowers, have small heads, contain less juice, and give a dark-colored opium. Moreover, chemical analysis shows that light-colored opium contains more morphia than dark. They reckon about $\frac{3}{4}$ lb. (fiscal pound) of poppy seed for each dunum† which before being sown must be mixed with four times the quantity of sand or fine earth, so that the ground may be evenly sown in equal proportions, which would be difficult with the seed alone. The end of October and the beginning of November are considered most favorable for sowing, especially when the fine weather following the first rain has prepared the ground for cultivation. The sowing is done exactly the same as for poppies in European gardens.‡ The germination takes about fifteen days.

* By Karl von Scherzer, Austrian Consul General at Smyrna. Taken from his recent work: *Smyrne, considerée au Point de Vue Géographique, Economique et Intellectuel.* 2de édit., 8vo, Leipzig, 1880.

† A *dunum* is a piece of ground 900 square meters.—Ed. N. R.

‡ The common poppy, cultivated in central Europe for its seed alone, gives excellent opium, it is true, but its extraction being only practicable on a large scale, this opium is too expensive.

Should frost occur, and the seeds not open on account of the earth being covered with a hard crust, the land is cultivated and sown again at the end of November or the beginning of December. While winter lasts, the plant remains small, and grows only by the root which, in a well pulverized soil, becomes strong and does not even suffer from night frosts, even if the plant itself was injured. When spring comes, the development is rapid according to the vigor of the root and the success of the seedlings. The plant is then trimmed and thinned; weeds are destroyed, and poppy stalks, when too crowded, also. Sometimes when weeds grow afresh, a second weeding is necessary. The plant then increases rapidly and puts forth from one to four stalks, three or four feet high, which flower at the end of April or the beginning of May. The poppy heads come to maturity about fifteen days after the flowers fall. Its ripeness is tested by gentle pressure with the finger. The ripe poppy-head is soft; when green it is hard. One must learn to perceive the ripeness at the proper time, for the incisions should then be made immediately. The harvest itself should be gathered in a few days; otherwise the overripe poppies, that is to say, ripe poppies left unpicked for six or eight days, give no juice.

The incisions are made in the afternoon with a small curved knife. The incision is made half way up the head and around it. To this end the poppy is grasped with the thumb and forefinger of the left hand, and half the incision made with the right, after which, without otherwise shifting one's position, the poppy is slightly turned round, and the incision completed. As soon as the blade (which should never penetrate the capsule, for if this be cut through, the juice is lost), enters, the white juice of the poppy escapes and flows about the cut. It is then left to dry in the sun in its place for six or eight hours. By this time it will have thickened, and changed to a yellow resinous substance which later on becomes a reddish-brown. It is then taken off with a knife and kneaded into spherical cakes of various sizes, seldom weighing more than two pounds (fiscal*) each. These cakes, wrapped in poppy leaves, are dried in the sun for several days. The cakes while yet soft are packed in baskets, or in little osier packages lined with cloth. To prevent the cakes from becoming disfigured, or sticking to one another, they are always dusted over with the dry fruits of a species of *Rumex*. To get in the crop of five *dunums*, a harvest which we have before said must be quickly gathered, requires ten laborers. The average yield of a *dunum* is estimated at four pounds (fiscal) or thereabouts.

In Asia Minor the cultivation of opium is only successful in the valleys of Kutaja, Ushak, Karahissar, Balikesri, Afium, Sparte, and Konijah, which are mostly protected from cold winds by high mountain ranges, and where the deep soil, adapted for wheat, is especially suitable for the poppy. The principal arrivals from the interior reach Smyrna at the end of July or the beginning of August. Fresh opium is too heavy for sale. The older opium, which is dry, and therefore costs more, is preferred.

The sale concluded, the opium is examined in the presence of both buyer and seller by an expert, recognized as such by all the merchants, and all pieces of a different quality, or mixed with foreign matters, so as to be worthless, are rejected. The condemned portion is returned to the seller who disposes of it at 20 or 30% discount to French and German manufacturers of morphia. The opium inspected is hermetically sealed in tin boxes, and cased in wood, when it is ready for export. The best opium comes from the Kutaja or Kutachia district, that is, from the village of Bogaditsh and its neighborhood. It is in rather small round cakes, of a light-brown color, with bluish gloss, and diffuses a pungent odor. It contains from 11 to 11½ per cent of morphia.

The opium known to commerce by the name of *yerli*, and which comes from the Western districts (Kintabir, Akhissar, Kürkagatsh) only contains from 8 to 10 per cent. Another kind, called *Roba mercantile* or *Roba commune*, cultivated in Afium Karahissar, is very common in the market. This last production, which is in dark-colored cakes, almost black, contains but from 7½ to 9 per cent of morphia. Finally, the poorest kind, furnished by the province of Konijah, the cakes of which are small, very hard, and dark-colored, contains only 7 to 8 per cent of morphia, and are sold under the name of *adet* (ordinary).

The price of opium depends above all on the year's crop. This has varied of late years between 4 and 7,000 baskets of about 150 pounds each. Usually, however, when 4,000 baskets (*couffes*) are harvested, the average price per *tsheki** is 200 piastres, which corresponds to 23*s.* 7*d.* per English pound; 34 francs the ½ kilogr., 18 fl. 15 kr. the Vienna pound; while a harvest of 7,000 baskets will reduce this price to 120 p. = 14*s.* 2*d.* the English pound, 20 francs 46 c. the ½ kilogr., 10 fl. 75 kr. the Vienna pound, free on board at Smyrna. The harvest is less, when, for example, either want of rain has delayed the sowing fifteen days, or when hard frost has injured the plant, or when the months of March and April pass without rain, or if this should come at the time of ripening.

The price of opium is also governed:

* The author means the Customhouse Pound (Zollpfund) of the German Custom's Union (Zollverein) 1 kilo = 1.063 Zollpfund. 1 Zollpfund = 509.4 grams. —Ed. N. R.

* A *tsheki* is a weight, differing for different products. A *tsheki* of goat's hair is 2 heavy *okas* or 800 drams = 2561 grams; a *tsheki* of opium is $27\frac{5}{16}$ heavy *okas* or 34 kilos 587 grams, or 76.22 lbs. avoid.—Ed. N. R.

1. By the reserves from the last harvest in the warehouses of Smyrna and London, which are the chief markets for opium.

2. By the demands of America, which has for some years required a large quantity of opium for her Western States, where this article is not used so much by physicians as by the Chinese immigrants (since the construction of the Californian railways) who smoke it largely.*

3. By the Persian and Indian crops. Persia has for some years cultivated opium with some success, and the European markets were abundantly supplied with opium from this source, when the famine which in 1871 desolated Persia put a temporary end to its cultivation. India, really the chief opium producer, cannot satisfy the Chinese demand, even when the harvest is a maximum one, but supplies itself from London and Smyrna.

4. By supply and demand.

The prices, which often fluctuate 100 per cent per tsheki in one season, that is to say, from August until May, offer ample scope for speculation. More than one-fourth thus changes hands annually; furthermore the same state of affairs exists in the markets of London and New York. We may add that opium is an article of daily sale, and therefore the speculation is independent of the consumption. It frequently happens that prices are lower in foreign markets than where it is produced.

Detection of Amorphous Quinine in Citrate of Iron and Quinine.†

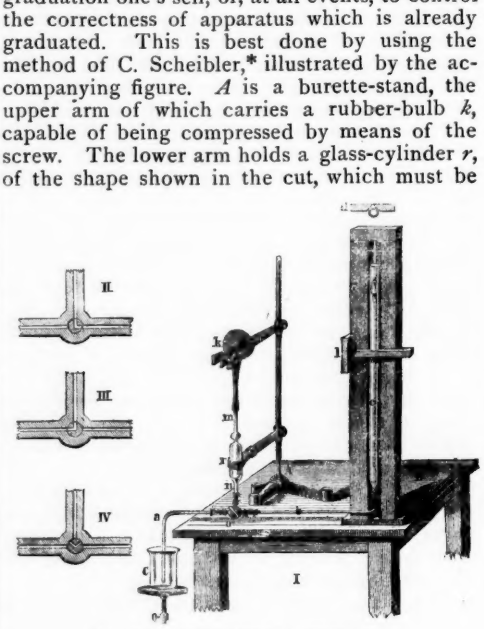
AMORPHOUS quinine, substituted for the crystalline in the above, is easily soluble in ether, and the substitution will not, therefore, be detected by the test of the Pharmacopœia. It can, however, be detected by transforming the separated quinine into a neutral oxalate. This oxalate, after being thoroughly dried on a water-bath, is dissolved in chloroform, and the solution, if necessary, filtered. If a few drops of water are put on the top of this solution in a test-tube, the oxalate of quinine will take a part of the water, and crystals of oxalate of quinine will appear in the chloroform, whilst the water on the top remains clear and uncolored if the medicine is not sophisticated. If it contains, however, amorphous quinine, the oxalate of this base will be taken up from the solution in chloroform, and the water on the top of this solution will be more or less yellow colored by the oxalate of amorphous quinine which has been dissolved by the water.—*Chem. and Drugg.*

* This is not exactly the case. Probably the larger portion of this opium finds its way into patent medicines and into the hands of persons addicted to opium-eating. It is well known that many of the Chinese in the United States smoke opium. For this purpose an extract of opium must be prepared, and it is not unlikely that some Chinese in the U. S. are engaged in its manufacture. Certainly there is but little opium for smoking imported, as the custom-house returns show.—ED. N. R.

† Abstract of a Paper by Dr. DE VRIJ, read at the British Pharm. Conference.

The Graduation of Burettes, Pipettes, and other Measuring Tubes.

GRADUATED tubes, such as are usually found in the market, are very generally more or less unreliable and incorrect—a fact which is often ascertained in the course of volumetric investigations after the loss of a good deal of time and labor. It is, therefore, advisable to make the graduation one's self, or, at all events, to control the correctness of apparatus which is already graduated. This is best done by using the method of C. Scheibler,* illustrated by the accompanying figure. *A* is a burette-stand, the upper arm of which carries a rubber-bulb *k*, capable of being compressed by means of the screw. The lower arm holds a glass-cylinder *r*, of the shape shown in the cut, which must be



Apparatus for Graduating Burettes, etc.

very carefully adjusted so as to hold a definite measure of water (1, or 2, or 5, or 10 ccm.), at a definite temperature, between the marks *m* and *n*. The rubber-bulb is connected with this cylinder, and the latter with a three-armed glass-tube provided with a two-way stop-cock. The tubes *m*, *n*, *a* and *b* have an internal diameter of about 1 millimeter. The tube *b* is connected, as shown in the cut, with the burette to be graduated. All connections are made by means of narrow-bored, but very thick india-rubber tubing, so that it cannot distend, and are securely fastened with string. The burette *c* is kept in a perfectly perpendicular position by being held between the bevelled sides (see *d*) of the two upright columns of the stand *B*. The latter do not meet, but are slightly separated at the back. Upon the burette are pasted two strips of paper, one on each side, leaving a width of about 3 or 4 mm. of the front of the burette uncovered. The burette must be so placed that the eye may be able to see through the uncovered front of the burette and the slit at the back.

* *Journ. f. prakt. Chem.*, 76, 180.

The burette, which must have been thoroughly cleaned with sulphuric acid or alcohol to prevent the water from adhering in drops, is now filled with pure water, and the faucet *o* is turned in the position of Fig. II., until every trace of air has been removed from *b*, *o* and *n*. If the water in the burette sinks too low, it is refilled until the mark on the Erdmann's float is at the level where it is desired to mark the first division. This is done by means of a stationary rule *l* and a finely pointed lead-pencil. The faucet *o* is now turned in the position of Fig. III, and enough water is allowed to flow out, or forced out by pressure upon the rubber-bulb *k*, until its level is exactly even with the mark at *n*. Then the faucet is turned back to the first position, Fig. II.), and enough water is allowed to flow from the burette into *r*, until the level *m* is exactly reached. The level of the mark of the float in the burette is then marked with the rule and lead-pencil as before. The space between the first and the second mark is exactly equivalent to the volume of the water in *r*, between the marks *n* and *m*, and this space may afterwards be properly subdivided. By alternately emptying the contents of *r*, down to the mark *n*, into the beaker-glass C, and refilling from the burette, the successive primary divisions upon the latter will be determined. Before marking the line upon the paper strips, a short time must be allowed to elapse, so that all water adhering to the inside of the tube may run down.

The normal measuring-tube *r* is constructed by joining two smaller glass tubes to one of a wider cylinder, of such a capacity that the desired volume may be *about* occupied between marks to be placed upon each of the narrow tubes. If the capacity of the apparatus is found to be too small, this may be remedied by blowing a bulb upon one of the legs. The capacity is accurately determined by marking the upper and lower level of an accurately weighed quantity of pure water, previously boiled and allowed to cool under the air-pump.

Medicinal Eruptions.

Dr. Arthur Van Harlingen, Chief of the Skin Clinic, Hospital of the University of Pennsylvania, read before the American Dermatological Association a paper on Medicinal Eruptions which is published in the October number of the *Archives of Dermatology*, and from which the following is condensed.

Arsenic.—A dermatitis of an erysipelatous nature is reported to sometimes follow the use of this drug; papular eruptions also, resembling the lesions of measles or those of the familiar papular syphiloderm of the face, though of a less coppery color. Urticaria-like eruptions seem, however, to be of the most frequent occurrence, accompanied in some instances by pyrexia.

Belladonna.—It is well known that this drug is recommended by the believers in the universality of the law of *similia similibus curantur* as a prophylactic of scarlatina, this belief being based on the fact that an erythematous or scarlatiniform rash sometimes follows its use. A number of cases are reported in which such an eruption occurred, it being usually unaccompanied by burning or itching and never followed by desquamation. The mucous membranes are apt to be affected at the same time.

Bromine.—Some, at least, of the eruptions due to the ingestion of bromide of potassium and other bromides have been known and recognized almost ever since the introduction of these drugs. The acneform and pustular varieties occurring usually on the face and chest are probably the most familiar. An erythematous eruption sometimes also occurs, and cases of maculo-papular, furunculoid, and bullous eruptions are reported.

Chloral.—The erythematous eruption is that most commonly observed as a result of the ingestion of chloral. It is often described as scarlatiniform or of a dusky rose-rolor, is apt to occur in patches with swelling and heat of the affected parts and is commonly accompanied by severe itching. It may last from half an hour to several hours. Like that due to belladonna, this eruption appears to be due to vasomotor paralysis, as are also the palpitations and dyspnœa which are not unusual concomitant symptoms. Cases of urticarious, papular, vesicular, and pustular eruption are also reported, while occasionally more severe forms of skin disturbance, as purpura, follow upon the prolonged use of chloral.

Copaiba.—The usual eruption from copaiba is a perfectly characteristic papular erythema or roseola. It appears by preference upon the hands, arms, knees, feet, and abdomen. Sometimes it appears suddenly, and covers the entire surface. If the copaiba is continued, it may take on other forms, and a true erythema be produced. The disagreeable odor of the skin in the copaiba eruption, owing to the large quantity of the drug eliminated by the various glands, is a diagnostic point of value.

Cubebs only rarely cause skin troubles, and then after the use of considerable doses, especially in young subjects. The skin, bright red in color, in a case reported, showed a considerable number of millet-seed sized elevations, which united here and there into finger-nail sized patches. There is no fever, pruritus, or throat trouble.

Iodine.—Eruptions due to iodine have long been recognized. The form may be erythematous, papular, vesicular, bullous, pustular, or hemorrhagic. Iodide of potassium is the form in which the iodine is usually administered, but in any form it may produce eruptions. A form has recently been described which is said to closely resemble eczema. It is very rare. It mostly affects the hairy scalp and the neighborhood of the scrotum, and soon disappears on stopping

the iodide; phlegmonous and purpuric eruptions have also been known to occur. The *rationale* of the iodine eruptions seems to be that there are conditions in which iodine, when present in the blood, attacks and disorganizes the vessels at certain localized points.

Mercury.—Eruptions from the use of mercury are rare, and Hebra even went so far as to declare that "no morbid out-break upon the skin could be brought about by the internal administration of any mercurial preparation whatever." Several cases are, however, collected by Dr. Van Harlingen in which the eruption was clearly traceable to mercury as the cause. These cases show the outbreak to have been almost invariably of an erythematous or scarlatiniform character, although cases have been reported where vesicles, bullæ, pustules, and phlegmon have been observed.

Morphia, Opium.—The eruption brought about by the ingestion of morphia or opium is usually of an erythematous character, often resembling closely that of scarlet fever. It is more apt to attack the flexor surfaces, and is accompanied by severe itching. Occasionally complete desquamation of the epidermis takes place over the palms and soles, the epidermis being removable in the form of complete casts of hands or feet.

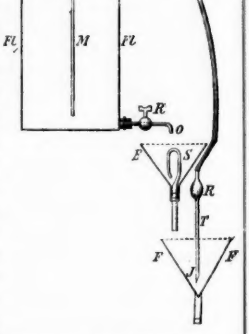
Quinine and Cinchona.—Although quinine and the preparations of bark have been in constant and extensive use for the past sixty years, yet comparatively few cases of eruption due to the use of this drug have been reported until within the last few years. As if to make up for lost time, however, a very large number of observations have been published of late, most, if not all, of which are quite authentic, and which place quinine among the drugs which are liable to cause eruptions in certain individuals. The prevailing type of quinine eruption is erythematous, closely resembling the rash of scarlatina or of measles. It first shows itself over the face and neck, but soon becomes diffused over the whole surface of the body. In exceptional cases, it may not become generalized; sometimes on desquamation the epidermis of the hands and feet is shed as a whole. Occasionally the quinine eruption is papular in form, sometimes resembling erythema multiforme papulatum, or more frequently urticarious, with distressing burning, tingling, and itching.

Salicylic Acid.—Eruptions due to the ingestion of salicylic acid or the salicylates are not very infrequent. In one case reported, a marked urticarious eruption occurred over the greater part of the body, especially the legs and abdomen, with œdema of the eyelids and arms. In another, vesicles and pustules on the hands and feet, accompanied by much sweating, were observed, they disappeared on the discontinuance of the drug.

With regard to the general pathology of medicinal eruptions, continues Dr. Van Harlingen, I do not think that our knowledge of the action of the drugs under consideration is sufficiently full and accurate to permit of any theory being brought forward which will satisfactorily account for the facts thus far observed. A plausible attempt has been made by Behrend to classify the medicinal eruptions into two categories,—one where small doses of the drug bring out very quickly and by a sort of catalytic action some generalized eruption; the other, in which he includes the bromine and iodine eruptions, where the long-continued use of the drug seems to cause a saturation of the system, and where its elimination causes local disturbances having their chief seat about the glands. This theory cannot, however, be made to square with the facts, inasmuch as the occurrence of petechial eruptions would not be adequately explained thus nor would the fact of the occurrence of exanthematous eruptions from iodine and bromine permit of their separation from the other medicinal eruptions.

A self-acting Apparatus for Washing Precipitates.

In several devices heretofore constructed to effect the automatic washing of precipitates, the requisite wash fluid was supplied by a continuously acting siphon, so that the filters were always kept filled up to a certain point. But it is well known that an intermittent washing has the advantage of saving both time and liquid; and to this end, Jean de Mollins has introduced some modifications, which will be understood by examining the cut. The flask *Fl* provided with the Mariotte's tube *M* contains the washing fluid, and this, during the commencement of the washing, flows from *O* (by turning the stop-cock *R*) into the funnel *E*. From this it can only flow off after it has filled it to the bend of the small siphon it contains, when the contents are discharged upon the edge of the filter, containing the material to be washed in the funnel *F*. As soon as the lower, obliquely cut end of the tube *T* is closed by the liquid, the flow of water from the receptacle *Fl* ceases, and only recommences after the liquid in *T* has run off so as to expose the end of the tube. The latter has a small bulb *R'* blown upon it, to prevent any minute portions of solid matter in the filter from being carried farther up into the tube *M*.—*Zeitschr. f. anal. Chem.*, 1880, 473.



Apparatus for Washing Precipitates.

Note on Vegetable Gelatin and the So-called Japanese Isinglass.*

THIS substance, known in China and Japan as the *Tshin-tian*, has been imported into Europe for a long time. The English, though aware of its vegetable origin, called it Japanese isinglass, which name also recalls its uses and outward characteristics. In France it was hardly mentioned a few years ago, and has only been in use of late, and even then with the fraudulent intention of substituting it for the genuine fish isinglass, which is dearer. We should also say that this production was introduced to the scientific world under unfavorable auspices. M. Charles Ménier, professor at the Medical and Pharmaceutical College of Nantes, was the first in France to call attention to Japanese isinglass, on finding that in a certain currant jelly it had been boldly substituted for the genuine article. Put on the track of the fraud by the presence of marine diatoms, the author discovered that its basis was this vegetable gelatin, from which he was led to point out its real nature.

Until the time of M. Ménier nothing was known about Japanese isinglass except its vegetable origin, and that it was probable derived from certain mucilaginous sea-weeds, rich in the particular constituent which M. Payen called gelose.

Japanese isinglass is imported in two forms. There is nothing to alter in Daniel Hanbury's description given in 1860: "Large quantities of a substance incorrectly called Japanese isinglass have been imported into London from Japan, in the form of irregularly compressed sticks, with the appearance of a furrowed membrane, semi-transparent, of a whitish-yellow color, eleven inches long by an inch and a half, full of cavities, very light, rather flexible, but easily broken, tasteless and odorless. These sticks expand considerably in cold water, and become a spongy square bar, with concave sides, an inch and a half wide. Although scarcely soluble in cold water, it dissolves almost entirely when boiled for a length of time, and the solution, even if diluted, solidifies on cooling. Another Japanese specimen resembles the preceding in properties but not in form. This is in long corrugated slips about an eighth of an inch diameter, which quickly expand in water, and are then seen to be irregularly rectangular. This is generally whiter than the other, more soluble, cleaner, and more transparent; it is most carefully prepared."

The same author continues: "We do not know the origin of raw gelose, or Japanese isinglass, nor the method of preparing it in Japan. M. Payen finds it can be obtained from several species, especially from the *Gelidium corneum* Lamx. and from the *Gracilaria lichenoides* Grev.; the first of these plants yielded twenty-seven per cent. The *Gelidium corneum* is certainly used by the Chinese, as I have ascertained from a collection of Chinese algæ sent to the Society of Arts in 1857, which specimens Mr. Harvey was kind enough to examine and name. However, it is very likely that the Chinese use other gelatinous algæ, such as the *Laurencia papillosa* Grev., *Laminaria saccharina* Lamx, *Porphyra vulgaris* Ag., and a species of *Gracilaria*, perhaps the *G. crassa* Harv."

The author of the present paper then enumerates no less than thirteen species of algæ of which he has found more or less proof that they are used for the preparation of this substance. Many others are probably used besides.

Both kinds of Japanese isinglass appear to have been made from the same raw materials, for the author found nearly the same components in each. Still it seemed that, in comparison, the *Gelidium polycladum* Kütz dominated in the slips, and the *Gloispeltis tenax* Turn. in the sticks. And yet the excess of either was perhaps but chance, the same as with other algæ found in them.

The author thinks Daniel Hanbury and M. Ménier are right in including the *Gelidium* in the preparation of Japanese isinglass, and in thinking that the Japanese use various algæ in this manufacture, perhaps even "all the indigenous algæ that contain gelose."

Now it is evident that the English name of "Japanese isinglass" or the French "ichthyocolle" are all incorrect. This is perhaps the reason why certain writers have substituted the name *Agar-agar*. But this title should not be retained. Once before the word Agar-agar invaded medical nomenclature as a synonym for Ceylon moss, Pereira having thought it was obtained from *Plocaria candida* Nees (*Gracilaria lichenoides* Grev.). But from various observations by MM. Archer and Simmonds, it is now certain that there is nothing alike between Ceylon moss and Agar-agar, which is the *Eucheuma spinosum* J. Ag.*

The name Agar-agar is thus diverted from its proper meaning when used to denote the subject of this article, and should therefore be discarded. If the words ichthyocoll, glue, glutin, and gelatin be, for the above reasons, also rejected, there remains but gelose, which is also incorrect, for it is the name of a definite chemical compound. Therefore the author prefers the name *phycocoll* (*phycocolla*) (glutin of algæ), which corresponds with ichthyocolla (fish glutin), and there would be Chinese, Japanese, and Bengal phycocoll, according to its derivation. That is,

* Abstract of a paper by Dr. Léon Marchand, in *Bulletin de la Société Botanique de France*, XXVI. (1880), p. 287.

* In the East Indies, Agar-agar is the *Eucheuma spinosum* J. Ag. Three other species of *Eucheuma* J. Ag. (*Sphærococcus Serra* Kütz, *S. gelatinosus* Ag., *Gigartina horrida* Harv.) are used under the same name and in the same way. In Timor the *Hypnea divaricata* Grev. is also employed; see G. V. Mertens, in *Preussische Exp. nach Ost-Asien. Die Tange*, 1866, p. 140.

if, after all, the name Tshin-tian, or, according to others, Lo-thá-ho,* should not be preferred.

Quinine for Hypodermic Use.

Prof. J. T. Whittaker, of Cincinnati, discussing the relative values of the various preparations of quinine for hypodermic use, mentions the insolubility of quinia (alkaloid); the irritating character of solutions of the sulphate secured by means of alcohol or acids, and quotes Eulenberg's statement that the bi-sulphate of quinine, dissolved in glycerin, will keep for four months. With the aid of heat three parts of glycerin will take up one part of the salt, thus permitting 10 to 15 grains to be administered with each syringeful.

Muriate of quinia, which is relatively richer in quinine than the sulphate (83.6, 74.3), is more soluble, more quickly absorbed, and less liable to decomposition, but it is also more expensive ($4.00 to $2.85 per oz.).

The ferro-citrate, bitartrate, lactate, and other salts have been used, but contain relatively less quinine.

The hydrobromate or the neutral bromide is the best for this purpose, according to the observations of numerous experimenters. Although less soluble than the bisulphate it is richer in alkaloid, and dissolves, with heat, in 15 parts of water or in 4 parts of glycerin.

Prof. Whittaker recommends the following method: Into a test-tube put twenty grains of bromide of quinine and two drachms of water and cork the tube. In order to use it, heat the tube (without smoking it) over a flame, and in two or three minutes solution of the crystals will have taken place. Pour a quantity into a teaspoon, that has previously been warmed, and from thence it may be drawn into the syringe (also warmed) and immediately injected *under* the skin. The usual half-drachm syringe will contain the equivalent of five grains of the salt. —*Cin. Lancet and Clinic.*

On the Preparation of Hydrobromate of Quinine.†

In a memoir published in 1870, Mr. Latour called attention to two new salts of quinine, namely, two bromhydrates corresponding to the two sulphates of quinine. The author proposed to prepare them by means of sulphate of quinine and bromide of potassium; later on, others (MacDonald, 1873; Boille, Baudrimont) gave the preference to bromide of barium, and the Société de Pharmacie of Paris adopted a process in which an equivalent quantity of bromide of barium was made to decompose a boiling aqueous solution of sulphate of quinine.

The author of the present paper having had frequent occasion to prepare the basic hydrobromate, used all of the above methods, without obtaining an entirely satisfactory product.

The process adopted by the Société de Pharmacie is objectionable, on account of the risk incurred by employing a poisonous salt; and besides, on account of the impossibility of completely decomposing the sulphate. Hence, the bromide of potassium is preferable, and the following process recommended:

Sulphate of quinine, commercial, crystallized	40 parts.
Bromide of potassium, dried and powdered	11 "
Alcohol, 80%	400 "
Distilled water	400 "

Dissolve the sulphate in two hundred parts of alcohol by the aid of heat, add the bromide of potassium, dissolved in thirty parts of distilled water, continue the heat five or six minutes in order to allow the sulphate of potassium, which is formed, to acquire greater compactness, so that it will more readily settle. Filter off from the precipitate, and wash four times with fifty parts of boiling alcohol. Let the alcoholic solution cool, when a further small quantity of sulphate of potassium will be deposited. The solution is then again filtered through white filtering paper, and evaporated on a water-bath to one hundred parts. Next, four hundred parts of distilled water are poured on, and heat is applied until the bromhydrate is completely dissolved. After allowing the solution to stand, in the cold, for about twenty-four hours, the capsule will be found filled with a compact crystalline mass. The crystals are transferred to a filter, allowed to drain, and dried by exposure to air. Heating would cause them to fuse. The product thus obtained amounts to about thirty parts of perfectly white hydrobromate of quinine. By evaporating the mother-water to one-third of its volume, about six parts more may be obtained.

It is absolutely necessary, as has been already pointed out by Boille, to redissolve the hydrobromate in water as above stated, if the salt is to be obtained in white and bulky crystals. The above quantity of four hundred parts should not be diminished, for if this were done, the salt (which fuses at 90° F.) would separate at first in form of an oily liquid, and afterwards would form a crystalline crust.—*Répert. de Pharm.*, 1880, 390.

Muscarine as a Remedy for Night-Sweats.

Dr. W. Murrell has treated twenty-six cases of night sweating with a one-per-cent solution of a liquid extract of *Agaricus muscarius*, of the consistence of molasses. Sixteen of the cases were in males, the remainder in females, of ages

* This is probably intended for *Hai-tsau* or *Hai-tsai*, sometimes found written in English books *hai-thao*, a name used to denote the above substance in China. Cf. F. Porter Smith, *Mat. Med. and Nat. Hist. of China*, p. 5.—Our readers will find a further description of this substance and of its uses on page 275 of New Remedies, for September, 1878.—Ed. N. R.

† Abstract of a paper by E. Leger in the *Répert. de Pharm.*, September, 1880.

ranging from forty-six to ten years. Five minims of the above solution was the smallest reliable dose; this was taken in water, three times daily, or in the evening an hour before going to bed. Improvement was usually apparent on the second or third night, and perspiration usually ceased by the end of a week. Benefit followed its use in nearly every case. The medicine is almost tasteless, is apt to spoil, but is kept by the addition of a few drops of alcohol. Its activity can be proved by its power to arrest the action of a frog's heart when topically applied. No dangerous symptoms followed the use, by a delicate young woman, of fifteen minims every three hours for a week, and then twenty minims every three hours for another week.

holding boiling water being all that is needed, and care must be taken to use it several times in the day and to inhale completely the rising vapor—not merely draw it into the mouth. [The ED. of NEW REM. has had an experience with a similar use of the remedy, which enables him to indorse what Dr. Munro says of its efficacy.]

Preparation of Opium for Smoking.

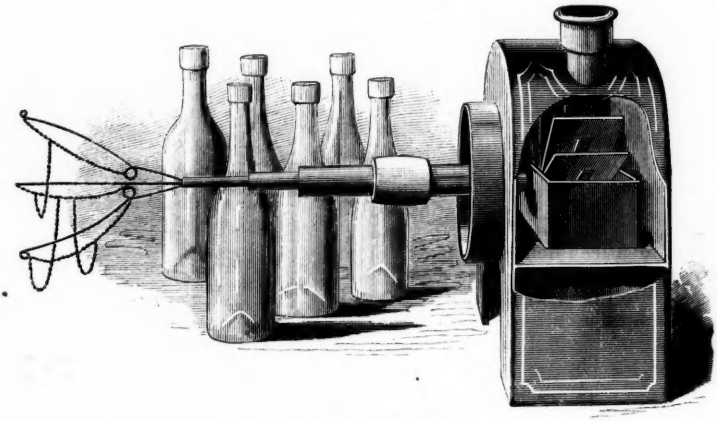
BY HUGH MCCALLUM, PHARM. CHEM.

Government Analyst, Hong Kong.

As the policy of the opium trade from India to China is receiving considerable attention among philanthropists, etc., in England, probably the following account of the process of preparing opium for smoking purposes, as conducted by the present opium farmer in Hong Kong, may be of some interest to pharmacists.

The boiling operations are carried on in a moderate-sized building at Shek-tong-tsui, in the west end of the city of Victoria, where there are over eighty Chinese coolies and a few Indian watchmen employed, all of whom live on the premises. The majority sleep in a loft immediately above the boiling rooms, the others in a room on the ground floor, which also does duty as a kitchen, mess-room and general store, and is in open communication with the boiling rooms. The employees may therefore be said to live in an atmosphere saturated with the odor of opium, yet all seem in good health. On inquiring if many of them were habitual opium smokers, the information received was that only one head-man smoked regularly, but that some of the others indulged occasionally when any of their friends paid them a visit.

The boiling is conducted in two rooms in open connection with each other, one being set apart for the first boiling, the other for the final. The first boiling room has a row of furnaces



Bottle-Washing Machine.

Bottle-Washing Machine.

THE machine here shown is intended to be used for cleaning bottles, lamp-chimneys, tumblers, jars, etc. The brush-carrying shaft is made to revolve by means of a small water-wheel, driven by a jet from a faucet, and the brush may be of any suitable form. In the present instance three wire arms carry small chains, which by centrifugal force are thrown against the sides of the bottle and serve to dislodge adherent matter and agitate the soap and water used in the cleaning process.—*Sci. Amer.*

Inhalation of Carbolic Acid in Diseases of the Respiratory Organs.

DR. ROBERT MUNRO reports (*Glasgow Med. Jour.*) a series of cases of phthisis and chronic bronchitis in which very decided and favorable results followed frequent inhalations of vapor of boiling water containing carbolic acid. Cases of fibrous phthisis and of chronic bronchitis in which there was excessive expectoration were especially benefited thereby. An inhaler, although convenient, is not essential, a pitcher or jug

along each side, with a few rows running transversely between them; the other has four rows, extending along the whole length of the room. The furnaces are made of a kind of fire-clay and are of two sizes, the largest having a diameter of about 24 inches, the small size a diameter of 18 inches, the depth of each being about 9 inches; they are built in with brick; the fuel used is wood-charcoal. The pans in which the opium is boiled are made of some kind of copper alloy, and are of two sizes so as to fit the furnaces, their shape being somewhat like a shallow evaporating dish. The opium is sent every day from the hong (*i.e.*, shop or firm) to the boiling house, the previous day's boiling being then returned to the hong. The average quantity boiled each day is from six to eight chests of Patna opium, this being the only kind used.

The opium is removed from its covering of leaves, etc., moistened with a little water, and allowed to stand for about fourteen hours; it is then divided into pans, 2½ balls of opium and about 10 pints of water going to each pan; it is now boiled and stirred occasionally, until a uniform mixture having the consistence of a thin paste is obtained. This operation takes from five to six hours. The paste is at once transferred to a larger pan and cold water added to about 3 gallons, covered and allowed to stand for from fourteen to fifteen hours. A bunch of tangsuin (lamp-wick, the pith of some plant) is then inserted well into the mass, the pan slightly canted, when a rich clear brown fluid is thus drawn off and filtered through chimui (paper made from bamboo). The residue is removed to a calico filter and thoroughly washed with boiling water, the wash-water being reboiled and used time after time. The last washing is done with pure water; these washings are used in the next day's boiling. The residues on the calico filters are transferred to a large one of the same material and well pressed; this insoluble residue, called nai chai (opium dirt) is the perquisite of the head boiling coolie, who finds a ready market for it in Canton, where it is used for adulterating, or rather in manufacturing the moist inferior kinds of prepared opium. The filtrate or opium solution is concentrated by evaporation at the boiling-point, with occasional stirring, until of a proper consistence, the time required being from three to four hours; it is then removed from the fire and stirred with great vigor till cold, the cooling being accelerated by coolies with large fans.

When quite cold it is taken to the hong and kept there for some months before it is considered in prime condition for smoking. As thus prepared it has the consistence of a thin Br. Ph. or treacly extract, and is called boiled or prepared opium. In this state it is largely exported from China to America, Australia, etc., being carefully sealed up in small pots having the name of the maker (*i e.*, hong) on each. The Chinese recognize the following grades of opium:—(1) "Raw opium:" as imported from India. (2) "Prepared opium:" opium made as above. (3) "Opium dross:" the scrapings from the opium pipe. This is reboiled and manufactured as a second-class prepared opium. A Chinese doctor stated lately at a coroner's inquest on a case of poisoning that it was more poisonous than the ordinary prepared opium. (4) "Nai chai" (opium dirt): the insoluble residue left on exhausting the raw opium thoroughly with water.

What strikes one very forcibly on witnessing these operations is that the morphia value of the opium can have little to do with its smoking value, because, if so, the mode of manufacture must deteriorate it considerably, owing to the long-continued moist heat it undergoes; however, there can be no doubt but the process described has after long experience been found to yield the drug in the most approved form for smoking. This opinion naturally raises the question, which of the definite principles of opium or combinations has the power when smoked, or rather burned in a pipe, the vapors being inhaled, of producing such peculiar effects? The elucidation of this point must be of great interest both to the chemist and physiologist. *Pharm. Journ. and Trans.*, Sept. 18th.

Camphor-Production upon Formosa.—Since the abolition of the camphor monopoly, trading in this article is equally permitted to Chinese and Europeans. Nevertheless, the purchase of camphor in the interior, owing to the peculiar difficulties connected with it, is surrendered by the foreigners exclusively to the Chinese. The camphor-tree occurs on the hills of the interior in large forests, which are inhabited by wild tribes, who annually kill a number of the Chinese engaged in felling the trees. Each year it is necessary to penetrate further into the interior, because *no new trees are planted* in place of those cut down. While this short-sighted method will sooner or later excite a fatal influence upon the camphor-trade, it has, on the other hand, the advantage of causing a more rapid civilization of the island, since the wild tribes are continually pushed further inland into the central and inhospitable mountainous regions. The class of Chinese who are engaged in the production of camphor may be designated as the scum of the Chinese nation, being altogether composed of persons who prefer the dangers of the wilderness to law and order. In the neighborhood of Yokoham, murders of camphor-tree cutters are said to be of daily occurrence. The export of camphor in 1878 amounted to 13,305 piculs (1 picul = 133⅓ lbs.), being 2 per cent more than the export in 1877, 53 per cent over that of 1876, and 84 per cent over that of 1875. The increase was chiefly caused by the fact that merchants upon Formosa found it more advantageous to remit payment to the Hong Kong importer in form of camphor than in funds. According to the latest custom reports, the price of camphor in Formosa is $9 to $10 per picul, and in Hong Kong, $18 to $20, but owing to the great loss, which sometimes amounts to 20 per cent, and the expenses of freight, commission, etc., the profit is much less than would appear from these figures.—*Oesterr. Monatschr. f. d. Orient*, July.

A British Surgeon is said to have remarked that he thought it a good thing for a man to get syphilis, because whatever might be the matter with him thereafter, he could always be cured with iodide of potassium.

NEW REMEDIES.

AN ILLUSTRATED MONTHLY TRADE JOURNAL OF MATERIA MEDICA, PHARMACY, AND THERAPEUTICS.

VOL. X., NO. 1. WHOLE NO. 79.

FRED'K A. CASTLE, M.D., - - EDITOR.
CHARLES RICE, PH.D., - ASSOCIATE EDITOR.

PUBLISHED BY
WILLIAM WOOD & CO., No. 27 Great Jones St., N. Y.

JANUARY, 1881.

SUBSCRIPTION PRICE, per year, - - - - - $2.00
SINGLE COPIES, - - - - - - - - - .20

Address all communications relating to the **business** of NEW REMEDIES, such as subscriptions, advertisements, change of Post-Office address, etc., to WILLIAM WOOD & Co., 27 Great Jones St., New York City, to whose order all postal money orders and checks should be made payable. Communications intended for the **Editor** should be addressed to THE EDITOR OF NEW REMEDIES, in care of William Wood & Co., 27 Gt. Jones St., New York City.

NEW REMEDIES is issued about the middle of each month, dated for the month ahead. Changes of advertisements should reach us before the 5th. New advertisements can occasionally be inserted after the 12th.

REGULAR ADVERTISEMENTS according to size, location and time. Special rates on application.

SUBSCRIPTION PRICE for "NEW REMEDIES," including postage to foreign countries:

Austria, 6 guilders.
Chili, 3 dollars (Chilian).
England, 12 *s.* 6 *d.*
France, 13 f. 4 c.
Greece, 6 drachms.
Germany, 10⅓ marks.
Italy, 14 lire.
Peru, 3 sole.
Russia, 3⅓ rubles.
Spain, 3 dollars (Spanish).
South American, 24 reals.
Sweden, Norway and Denmark, 1 ducat, 1 kronor.

Remittances should be made by Post Office money orders or by drafts on London or New York, when practicable.

ELECTROTYPES of the illustrations contained in NEW REMEDIES will be furnished for 50c. per square inch.

EDITORIAL.

The Hospital Stewards of the United States Army.

WE have recently become aware of an effort that is being made on the part of that meritorious and overworked class of Government servants—the hospital stewards of the Army—to secure a rate of compensation which shall not be so ridiculously out of proportion to the value of their services as that which is now allowed them. There can be but one reason which accounts for their tolerance of their present condition, and that is the fact that they have too much to do to have time to look after their own interests, and are too widely separated from each other to be able to act in concert.

There are but one hundred and eighty-four hospital stewards in the entire service, and these are scattered from Maine to California, and Alaska to Florida. The regulations of the service require that they shall be of honest, upright character, temperate habits, good general intelligence, possessed of a complete knowledge of the English language, and able to write legibly and spell correctly; this last point being essential to their duties as keepers of the hospital records and accounts, and attend to the general business of the hospital. The hospital steward must have sufficient practical knowledge of pharmacy to enable him take exclusive charge of the dispensary, must be able to apply bandages and dressings, draw teeth, apply leeches and cups, and be sufficiently familiar with the details of cooking to enable him to administer the affairs of the kitchen successfully and with economy. In other words, he is a pharmaceutist, a clerk, a nurse, a dentist, and a cook; and on remote posts, in the absence of a medical officer through sickness or detachment on other duty, there are times when the hospital steward fills also the *rôle* of an assistant surgeon. Now, what is the magnificent sum with which these services are honored?

$1.00 *per diem—or a trifle less!*

And yet it is well known that there is no class of Government employees who work more hours, carry, in proportion to their rank, greater responsibilities, serve the interests of the Government more faithfully, or grumble less than these one hundred and eighty-four hospital stewards.

Now, for sake of comparison, let us look at the hours of labor and the salaries paid to the subordinate members of other staff corps of the Army and Navy:

The Quartermaster's Department have for duty civilian clerks at all headquarters, depot quartermaster's offices, and at all principal military posts, at a pay of from seventy-five dollars ($75) to one hundred and twenty-five dollars ($125) monthly, performing duties purely clerical, and confined to office hours. Only one-fifth of a steward's qualifications required.

The Subsistence Department has for duty at every post a commissary sergeant, at a pay of thirty-four dollars ($34) monthly, and at headquarters and purchasing depots, civilian clerks at the rate of one hundred dollars ($100) monthly, who are but clerks and storekeepers, and whose work is confined to office hours (to 4 P.M daily).

The Engineer Corps has two non-commissioned staff-officers at thirty-four dollars ($34) monthly, whose duties are wholly clerical, and at each engineer's office is from one to six civilian clerks at a pay of from one hundred ($100) to two hundred dollars ($200) monthly. The duties of the above are also limited to office hours.

The Ordnance Department have ordnance sergeants of posts, who are merely storekeepers, and seldom do two hours' work a day; and sergeants of ordnance who are simply overseers of laborers, at a pay of thirty-four dollars ($34) monthly. There are, also, at every arsenal civilian clerks at various rates of pay, whose work extends over a few hours daily.

The Pay Department has a clerk for each paymaster, at a salary of one hundred dollars ($100) monthly, and all expenses while travelling on duty paid, sleeping-car fare and hotel bills included. His duties are entirely clerical, and require but one-fifth of a hospital steward's qualifications.

The general service clerks at Headquarters of Departments and Divisions receive eighty dollars ($80) monthly, for extremely light duties compared to those of a hospital steward, and even the messengers at the same headquarters receive more than stewards at posts.

The Signal Service pay its sergeants eighty dollars ($80),

and assistants seventy dollars ($70) monthly for duties nearly identical with what hospital stewards have done for years, in addition to their other duties. It is well known that the origin of the Signal Service was in the Medical Department, and its lamented founder and chief entered the service as an assistant surgeon. It is still a part of the duties of a hospital steward to take meteorological observations, and at some stations as many as forty-four observations are taken daily, besides special ones of rain and unusual atmospheric disturbances.

The Navy have "Apothecaries," who receive sixty dollars ($60) monthly, for duties much lighter than those of a steward, for they have no women and children to dispense to, and it is an admitted fact that the women and children of a military post, or garrison, consume five times more medicines and medical supplies than all the men. Furthermore, there is no large hospital establishment to look after, as matters of that kind are of a much simpler nature on board ship, serious and chronic cases being generally transferred to to hospitals on shore at the first naval station or port.

We publish herewith the text of a bill, prepared by the Hon. I. H. Osmer, for the consideration of the present Congress, and we hope that pharmaceutists throughout the country will use their influence to secure its passage. The only fault that we notice in it is that the rate of pay asked for is still too moderate.

AN ACT TO PROVIDE FOR THE BETTER SELECTION OF HOSPITAL STEWARDS, UNITED STATES ARMY, AND FIXING THEIR PAY AND ALLOWANCES.

Be it Enacted by the Senate and House of Representatives of the United States of America in Congress Assembled:

1. That hereafter applicants for the position of *Hospital Steward, United States Army* (first-class), shall be required to pass an examination as to their moral and professional fitness for that grade, before a board of not less than three Commissioned Medical Officers of the Army. Provided that no person shall be examined by any Board without the written authority of the Surgeon-General U. S. Army, and that no person shall receive an appointment who has not been so examined and recommended.

2. That no *Hospital Steward, U. S. Army* (first class), shall be discharged the service of the United States before the expiration of his term of enlistment, except by the sentence of a General Court Martial, or upon his own application approved by his *Commanding Officer.*

3. That the pay of *Hospital Stewards, U. S. Army* (first class), shall be *fifty dollars* ($50) *monthly*, and the increase for continuous service now allowed by law to enlisted men.

4. That the allowance of quarters, fuel, rations, and clothing shall be as *now* fixed by law.

5. That the provisions of this act shall not in any way interfere with, or change existing laws or regulations relating to the appointment of Hospital Stewards of the 2d or 3d class.

6. That this act is to take effect *immediately* upon its passage.

7. All acts or parts of acts inconsistent with the provisions of this act are hereby repealed.

Portraits.

THE March number of NEW REMEDIES will contain a lithographic portrait of Dr. J. Milner Fothergill, of London, well known throughout this country for his writings on therapeutic subjects and as the author of an interesting series of letters on medical men and matters, that have appeared from time to time in the columns of our cotemporaries. Other portraits will follow during the year.

PROPORTIONS BY WEIGHT AND EQUALIZATION OF DOSES.

A System of Expressing the Strength of Remedies by Symbol, and Observations on a Proposed New Class of Pharmaceutical Preparations, having the Doses of all Drugs Equalized.

BY ALBERT MERRELL, M.D.

THE proposed introduction of proportions by weight in all formulæ of the forthcoming revision of the U. S. Pharmacopœia, taken in connection with the unquestionable tendency in the same direction in all authoritative works of similar nature, suggests several questions of interest to the physician and pharmacist. The adoption of parts by weight, with the construction of formulæ, whenever possible, on the decimal scale, is intended, no doubt, to pave the way to the introduction of the metric system of weights. It is not intended to discuss the merits of this system or the wisdom of the proposed changes from measure to weight. That they will introduce many complications in dispensing and dosage, no one who has given the subject thought can doubt. That the metric system in prescribing does not meet the favor predicted is also admitted. Can the complications be avoided? Liquids are habitually consumed by measure. With the new system all must be dispensed by weight, or approximations introduced which are inconsistent with absolute accuracy. Can these difficulties be overcome? These are a few of the questions that suggest themselves. However, in view of the fact that the mass of intelligent pharmacists and physicians favor the proposed innovations, nothing remains but to devise some plan by which all may be induced to fall in with the new order of things. The simpler and more uniform the proportional relation between the drug and the preparation therefrom, the more easily will it be remembered, and the less likely will mistakes be made in prescribing. If all preparations bore the same relation to the drug, it would be only necessary to learn the dose of the drug by weight to know that of the preparation by weight. This identity of relation would not be practicable.

What plan can we adopt to compensate for the complications arising from this variability? The following is offered as partially, at least, meeting the requirements.

Having adopted proportions by weight, as simple as possible, without too abruptly changing those now in use, *let such proportion be expressed upon every label by means of a symbol.*

The following system has been in use by the writer with much satisfaction for several years. The unit of strength is the single remedy, that is, the *crude drug* (estimated dry), the isolated *proximate principle*, or the *chemical.* This standard or unit is called the "Normal" (after the analogous use of the word in preparing volumetric solutions) and the letter "N" used for its abbreviation. This letter with a number placed before it (co-efficient) if the preparation is a concentration, or under it (denominator) if a dilution, forms a symbolical expression of the *relation* of the preparation to the drug or normal. The letter "N" used alone upon a preparation would indicate that it represented its *own weight* of the drug or normal, as

"Normal tincture or Fl. Ext. aconiti rad. N." A tincture of half the strength, thus

"Semi-normal tincture gelsemium $\frac{N}{2}$."

Other relations thus: Tinct. iodinii, U. S. P. $\frac{N}{10}$. Tinct. digitalis, U. S. P., $\frac{N}{7}$; representing respectively one-tenth and one-seventh of the strength of the drug or "normal" from which they are made, etc.

The extracts of commerce are marked with the letter

"N" with a co-efficient, indicating how many times stronger than the normal the extract so labelled should be. Thus

Ext. conii alc., U. S. P., 5N.
Ext. jalapæ, U. S. P., 8N.

indicate that one part of these extracts represents respectively five and eight parts of the normal or drug.

Podophyllin $\frac{N}{10}$ would represent the same strength of the drug as the homœopathic first decimal (1^x) trituration. The 2d, 3d, 4th, etc., of the same scale could be written by this system, $\frac{N}{10^2}$, $\frac{N}{10^3}$, $\frac{N}{10^4}$, etc.

This symbolism is equally well adapted for all preparations, whether concentrations or dilutions, provided they are made in parts by weight. With a symbol on the label, the dose of the normal being known, that of the preparation is readily reckoned as follows: calling the dose of the drug or normal the "normal dose," the *Rule for Estimating the Dose of Dilutions* will be: *Multiply the "normal dose" by the denominator of the symbol.*

For Estimating Dose of Concentrations:

Divide the "normal dose" by the co-efficient of symbol.

Of course the dose estimated by this method is the purely empirical one of the posological tables. Strictly speaking, an exact statement of dose is not possible. *The proper dose in any given case is the minimum amount that will antagonize or oppose that pathological condition in a tissue or organ, which constitutes the departure from the standard we call health.* This amount will vary with the person and the condition. *The minimum dose that will accomplish the intended purpose, is a necessity of a rational therapeutics.* We cannot, therefore, fix a definite, unchangeable dose. We can, however, fix the limits of *safety in dose;* or a maximum, adult dose. That given in approved posological tables will serve the purpose and may be termed the "normal dose." If this "normal dose" were indicated on each label together with the proper symbol, the dose of any preparation could be at once estimated by the rule given. This plan does not, however, relieve the physician of the necessity of constant reference to authority for dosage. The only plan that can accomplish this most desirable object, is the introduction of a new class of dilute preparations in which the *doses of remedies are equalized.* The normal or maximum dose of each drug would be represented by the same weight of each of the preparations of this new class.

This suggestion is not new in principle, but we think has not been presented as yet in a sufficiently practical form as to commend itself to acceptance. In the August (1880) number of NEW REMEDIES, Oscar Oldberg, Phar.D., of Washington, D. C., communicates an article on this subject, which has not received the attention we think it deserves. He proposes to introduce four or five classes or groups of preparations, the average dose of which will be a fraction or multiple of a gram. These, he proposes to designate "posological preparations," and to give them such names as "lactoses" (lactosa), "percolates" (percolaturæ). These are to be used with prefixes, such as venti-, deci-, bi-, tri-, penta-, etc., indicating respectively the number of times the unit of weight or measure adopted as the dose. *E.g.:* a *deci-lactose* is a lactose with an average dose of a decigram; *penta-percolate* one the dose of which is five grams or cubic centimetres. The fundamental rule for the proposed preparations is—"The proportion of active constituent to diluent or menstruum shall be in inverse ratio to the posological potency of that active constituent. To make a preparation the average dose of which shall be a decigram, let the percentage strength of it be the number of milligrams representing the average dose of the active ingredient: to make a preparation the dose of which shall be a gram, let the percentage strength be expressed by the number of centigrams representing the average dose of the active constituent, and so on."

We question the propriety of introducing a number of new groups of preparations under names so widely different from such as are now in use. We question further the necessity of more than *two groups* of *such preparations*, one of powders and the other of liquids. We would include both under the general title of *Attenuations* (attenuationes), which might be abbreviated in writing or on labels "Atten." or "Att.'

Their strength we would adjust so that *one gram* of ach powdered attenuation would represent the maximum or "normal dose" of the active ingredient, and, that *four cubic centimetres* would be equivalent to the "normal dose" of the drug in case of attenuated *liquids.*

Upon the labels of both forms of attenuations, there should invariably appear *its* maximum dose (1.0 or 4.0), and the symbol, as above explained, representing the proportional relation of the "attenuation" to the "normal."

The dose of the "attenuation," divided by the denominator of the symbol, will give the maximum dose of the drug or "normal dose," or conversely.

The "normal dose" of the drug multiplied by the denominator of the symbol, gives the dose of the "attenuation" (1.0 = 15½ grs. or 4.0 = fl. 3 i.). To illustrate, taking the table of maximum doses in the appendix of the National Dispensatory as a guide

The maximum dose of Ext. aconiti rad. is .025 = ⅜ gr.

The powdered attenuation of this drug with a maximum dose of 1.0 we would write:

Ext. Aconiti Rad. Att. $\frac{N}{40}$

Dose 1.0 = 15½ grs.

1.0 ÷ 40 = .025 "normal dose" or maximum dose of drug.

15.5 grs. ÷ 40 = ⅜ gr. "normal dose" or maximum dose of drug.

Conversely:

.025 × 40 = 1.0 dose of "Atten." in grams.

⅜ gr. × 40 = 15.5 gr. dose of "Atten." in grains.

The maximum or normal dose of liq. potass. arsen. is .4 = 6 grs.

In attenuation, we write:

Liq. Potass. Arsen. Att. $\frac{N}{10}$

Dose 4.0 = fl. 3 i.

4.0 ÷ 10 = 4 "normal dose" of drug in cc. or grams.

60 ♏ or gr. ÷ 10 = 6 grs. or minims = "normal dose" in minims, or

.4 × 10 = 4.0 dose of "Atten." in grams.

.6 ♏ × 10 = 60 ♏. or fl. 3 i., dose of "Atten." in minims

The maximum dose of Tr. verat. vir. is .5 or 7½ grs.

In "attenuation" we have:

Tr. Verat. Vir. "Atten." $\frac{N}{8}$

Dose 4.0 or fl. 3 i.

4.0 ÷ 8 = .5 "normal dose" of drug in cc. or grams,

60 ♏ ÷ 8 = 7½ ♏ "normal dose" of drug in minims, or

.5 × 8 = 4.0, dose of "atten." in grams.

7½ ♏ × 8 = 60 ♏ dose of "atten." in minims.

The above examples illustrate the use of the symbols, and their advantages.

All solids are attenuated with sugar of milk. Attenuations of liquids, if non-alcoholic, should be made with the original menstruum. If alcoholic, with a menstruum *containing as little alcohol as possible to have the preparation keep well, and remain clear.* To make attenuations in powder: *Multiply the maximum or "normal dose" of the drug by the number of doses of* 1.0 = 15½ *gr. each to be made. The product is the amount of the drug or "normal" to be weighed out. To this amount add powdered sugar of milk sufficient to make the intended quantity.*

To make liquid attenuations:

Multiply the maximum dose of the "normal" by the number of doses (4. cc. = fl. 3 i. each) *to be made, and add*

to that weight of product, sufficient of a suitable menstruum to make the intended measure.

It may be objected that 1.0 = 15½ grs. is too bulky as a maximum dose of an attenuation. This objection is overcome by dividing the dose and increasing the frequency of its administration, or by suspending it in liquid. This dose would rarely be administered, and then not repeated oftener than three times per day. The dose is "elastic" enough to meet all cases and ages, but *always in the direction of safety*, as of course the maximum should never be exceeded and its bulk would, in a measure, prevent such a mistake.

Remembering the doses of the powdered and fluid attenuations, and their equivalents in grains and minims, the physician could prescribe either by the metric or present system. As the former would be simpler he would soon learn to prefer it. Having but the two doses 1.0 and 4 cc. to remember, he need not think of the "normal dose," but simply ask himself the question "what percentage or how many *tenths* of the dose of this attenuation (1.0 or 4.0, 15½ gr. or fl. ʒ i.) must I order for this patient, considering his age and condition and the object to be attained?" Having decided on the dose, he would prescribe by the following rule. For *Powdered Attenuations. Multiply the dose determined on by the number of doses needed, and order an amount equal to the product to be divided into the required number of powders, pills, or capsules.* Thus if twenty doses of arsenious acid in the form of an attenuation were to be given, and each dose was to contain $\frac{1}{10}$ of the maximum, we would order,

℞ "Acid. arseniosi *att.*".....2.0
Div. in cht. No. xx.

or

℞ Acid. arseniosi "att.".....grs. xxx.
Div. in cht. No. xx.

Each powder contains 0.1 = 1½ grs. of the attenuation, *i. e.*, $\frac{\text{1.0 or 15½ grs.}}{10}$. To prescribe a *Liquid Attenuation: Determine the fraction of the maximum attenuation dose* (4.0 = fl. ʒ i.) *required. Multiply the dose so determined, by the number of doses needed, and to the product in cc. or minims, add sufficient of a suitable vehicle or menstruum to make the required number of doses of* 4.0 *or fl.* ʒ i. *each.* To illustrate: Suppose it were determined that a patient required thirty doses, each one-*half* that of the maximum of Tr. verat. virid. U. S. P. atten., we would order:

℞ Tr. verat. virid. U. S. P. "atten."....15.0
Vehicle or menstruum q. s. to make..30.0 or cc. M.
Dose 4.0 or cc.

or

℞ Tr. verat. virid. U. S. P. "atten."....fl. ʒ xv.
Menstruum q. s. to make.....fl. ℥ iv. M.
Dose fl. ʒ i. or a teaspoonful.

Each dose contains one-half the maximum attenuation dose (= 0.5 = fl. ʒ ss.). The attenuations will be especially useful forms for powerful remedies. Their advantages to physicians who dispense their own remedies, and especially when it is necessary to prepare doses without scales or measures, is easily apparent. Under this plan, Morphia sulph. att. $\frac{N}{33}$, dose 1.0 = 15½ grs. or Ext. aconiti rad. att. $\frac{N}{40}$, dose 1.0 = 15½ grs., and other similar preparations, would soon become known as convenient forms of such potent drugs. In the liquid attenuations, the usual approximations of weight to measure are used, ignoring differences in specific gravity. Four cubic centimetres are considered as equivalent in weight to four grams, and both these amounts to a fluid drachm. The weight of one minim is called one grain, with the attenuated liquids. We do not think there can be any reasonable objection to these approximations, which are already in common use for liquids far more potent than the attenuations proposed. The expression in symbol of the relation, in parts by weight, of preparations to the drug from which they are made, is new so far as the writer is aware. It possesses so many advantages that it is hoped this statement of the system may prove useful to both physicians and pharmacists. The use of the symbol upon the labels of the proposed attenuations, in addition to the abreviation "atten." will serve as guard to prevent errors. With the liquid attenuations, the symbols are not mathematically correct, on account of the approximations above referred to; but their use can, we think, be considered justifiable and desirable under the circumstances. Much more could be presented in favor of this system, but enough has been written for our present purpose of bringing the subject to the attention of those interested.

2146 Chestnut street,
St. Louis, Mo., Oct. 28th, 1880.

RECENT PAPERS.

To Transfer Figures, Names, Pictures, etc., upon Glass, the following method of Leclève, of Paris may be employed. Glass which is thinly silvered is coated with a very thin coat of asphalt. [This is done by dissolving Syrian asphalt, such as is sold by photographic dealers, in beazin, and coating the glass with the solution, without exposure to direct sunlight.] A photographic cliché, or a properly cut pattern of dark paper, pasteboard, etc., is laid upon the asphalt-coat when dry, and the whole then exposed to the rays of the sun, which will render the asphalt, wherever the latter is exposed, insoluble. The protected asphalt coating is then washed away with benzin and the "silver" coating below it with nitric acid, while the drawing or pattern will appear in silvered lines and figures upon the glass.—*Industrie-Blätter.*

Artificial Production of Citric Acid.—During May, of 1880, the announcement was made that two French chemists, Grimaux and Adam, had succeeded in producing citric acid artificially, by starting from glycerin, subsequently acting on one of the products with concentrated prussic acid, etc., etc. This process, however, had only a scientific interest, and cannot be followed in practice for the purpose of manufacturing the acid.

On the 15th of August, Prof. Kekulé presented a paper to the Berlin Chemical Society, in which he described a totally different synthesis of the same acid. He set out from *malic acid*, the acid of unripe apples, but one that has already been made artificially. In 1864, Wislicenus had converted it into acetyl-malic ether by treating diethyl-malate with acetyl chloride. The following formulæ will explain this:

Malic acid.	Diethyl-malate.	Acetyl-malic ether.
$COOH$	$COO(C_2H_5)$	$COO(C_2H_5)$
$\vert$	$\vert$	$\vert$
CH_2	CH_2	CH_2
$\vert$	$\vert$	$\vert$
$CHOH$	$CHOH$	$CHO(C_2H_3O)$
$\vert$	$\vert$	$\vert$
$COOH$	$COO(C_2H_5)$	$COO(C_2H_5)$

The last named ether was, by Kekulé, dissolved in ordinary ether, and treated with metallic sodium and monobromo-acetic acid. Of course the bromine in the latter combined with the sodium in the former, to form bromide of sodium, which separated because it was not soluble in ether. The other product was boiled with alcoholic potash, an operation known as saponification. This formed a potash salt, insoluble in ether. From this he made the lead salt, and then set the acid free by passing sulphydric acid into its solution. At the time of his making this communication he had not purified the acid, but its reactions with lime salts were such as to satisfy him that it was in reality citric acid which he had obtained.—*Ber. d. Deutsch. Chem. Ges.*

Andreoni, a Italian chemist, has also given notice that he is trying to make citric acid from the triethylic ether of malic acid, by means of sodium and bromoacetic ether, a method quite similar to that of Kekulé.—*Ibid.*

On the Analysis of Soaps.—(JUL. LOEWE). For the determination of moisture the author takes from 8 to 10 grms. shaved very finely, and dries them first, at 60° to 70°; afterwards, at 100° to 105°. If it is supposed that the soap contains caustic alkali, the process must be conducted in an atmosphere free from carbonic acid. The free alkali may also be determined before the process of drying by exposing a portion of soap, shaved very fine and weighed, upon a watch-glass in a cylinder filled with dry carbonic acid and closed, the proportion of caustic alkali being calculated from the increase of weight. The exposure must not last too long, in order to prevent the formation of bicarbonate.

To determine free unsaponified fat, the portion of dried soap is thrown into a rather high beaker capable of being well covered, and extracted with benzol or petroleum with the aid of heat, according to the method of Perutz, and decanting, when clear, into a small tared flask. If the decantation is difficult, it is passed through a weighed filter, which is afterwards used for the alcoholic solution of the soap. After two or three extractions the filtrates are collected and distilled, the residue dried at 108° in a chloride of sodium bath, and the increase of weight of the flask is noted, which shows the proportion of the non-saponified fat.

The residue freed from such fat is covered with about 8 to 10 parts of alcohol at 90 per cent, and heated to 40° to 50° in the water-bath. Caustic alkali, and that in combination with fatty acids, along with glycerin, are readily dissolved, whilst soda (carbonate), farina, and mineral impurities remain undissolved, and after washing with hot alcohol and drying at 100° may be weighed. In the better class of soaps, the residue does not exceed 1 to 1½ per cent.

A moderate stream of well washed carbonic acid is then allowed to play upon the surface of the warm alcoholic filtrate. Caustic alkali, if present, is deposited as alkaline carbonate. The beaker is covered, allowed to stand till clear, heated in the water-bath, the contents filtered, and the filter is washed with warm alcohol. In the aqueous solution of the residue the carbonate of soda may be determined volumetrically.

The second alcoholic filtrate, thus freed from soda, is mixed with sulphuric acid diluted with alcohol as long as a turbidity is produced. When clear, the sulphate of soda deposited is filtered off, collected upon a weighed filter, washed with alcohol, dried at 110°, and weighed. The weight shows the alkali which was in combination with the fatty acids.

The filtrate is acidulated with sulphuric acid, mixed with water, and freed from alcohol by evaporation in a platinum capsule. When cold, the acid aqueous extract which may contain glycerin is separated from the congealed fatty acids by filtration. These acids, as well as the glycerin, may be determined by known processes, the latter after the accompanying sulphuric acid has been saturated with barium carbonate.

The residue, insoluble in alcohol after being weighed, is washed with cold water till the filtrate makes up exactly 60 cc. The water is then driven out of the filter by means of alcohol, and the residue is dried at 100°.

After being weighed, the residue is submitted to microscopic examination in order to detect starch. Mineral impurities are sought for by ordinary analytical methods. —*Zeitchrift für Analytische Chemie.*

Zeiodelite.—This compound, says the *Chemiker Zeitung*, was discovered by Simon, but has not been used so much as its peculiar advantages would seem to suggest. It is prepared by mixing 25 to 30 parts of powdered glass in 20 parts of melted sulphur. While soft this can be shaped into any design, and it cools into a stony hardness, resisting boiling water and the strongest acids. It is recommended for lining sulphuric acid chambers. It can be united by heating up to 200° C.

Glycerin in Acidity, Pyrosis, and Flatulence.—DRS. SIDNEY RINGER and WM. MURREL have been using glycerin as a remedy for the above symptoms of gastric derangement, and find it very useful, owing, probably, to its effect of retarding or preventing certain putrefactive changes in the contents of the stomach. In some cases it relieves pain and vomiting. They quote the observations of Murlics, Murk, and Wilmot, which show that glycerin retards or arrests decomposition of nitrogenous substances, that 2 to 3% will delay lactic fermentation of milk from 18 to 24 hours, that meats are preserved when immersed in glycerin, and that bacteria are destroyed by it.

They find it to have no effect upon the digestive power of pepsin and hydrochloric acid, and are accustomed to use it in doses of one or two drachms either just before, with, or after taking food. It may be given in water, tea, coffee, or lemon and soda-water. In tea or coffee it may replace sugar. Ten days or a fortnight sometimes pass before a cure is effected.

Distinction of Benzin, Benzol, and Shale Naphtha.*—This paper was a continuation of one read at Sheffield last year. The following table summarizes the author's tests for distinguishing petroleum spirit (benzin), shale naphtha, and coal-tar benzol:

MODE OF TREATMENT.	PETROLEUM SPIRIT.	SHALE NAPHTHA.	COAL-TAR BENZOL.
a. Sp. gr. of sample.	.690	.701	.876
b. Boiling point of sample.	65° C.	66° C.	81° C.
c. Solvent action on coal-tar pitch.	Very slight solvent action on pitch; liquid but slightly colored even after prolonged contact.	Behaves similarly to petroleum spirit.	Readily dissolves pitch, forming a deep brown solution.
d. Behavior of the sample when 3 measures of it are shaken with 1 measure of fused crystals of absolute carbolic acid.	No apparent solution. The liquids are not miscible.	The liquids form a homogeneous mixture.	The liquids form a homogeneous mixture.

Shale naphtha is the highly volatile and inflammable liquid obtained as a secondary product in the manufacture of paraffin, wax, and burning oil from the bituminous shale of the south of Scotland. In physical properties it presents the closest resemblance to petroleum spirit, both liquids are known in commerce as *benzoline*, and are usually said to be identical in chemical composition. Its behavior when treated with fuming nitric acid is quite different from that of petroleum spirit.—*Chem. and Drugg.*

Effects of Podophyllin on the Sense of Taste.—A correspondent of the *Lancet* calls attention to the effects of podophyllin on the sense of taste when taken in small repeated doses. Patients taking it in this way have declared they could not distinguish one food from another. A gentleman who took the remedy in doses of $\frac{1}{30}$ of a grain thrice daily, found after the third dose that his tongue and neighboring glands were greatly swollen, there was profuse salivation and entire abolition of the sense of taste.—*Ibid.*

* Abstract of a paper by A. H. ALLEN, read at the British Pharm. Conference.

Iodide of Starch as an Antidote.—Providing you get rid of the poison before you use the antidote, Dr. Bellini, of Florence, says that iodide of starch (which is a mixture of iodine and starch) will be found a very excellent "general antidote" for poisons, that is to say, for sulphuretted hydrogen gas, the alkaloids, and alkaline sulphides, ammonia, and especially for alkalies with which iodine forms insoluble compounds. Now as most cases of poisoning do not occur from these agents, and as Dr. Bellini especially recommends his "general antidote" for cases in which the source of poisoning is not known, owing to its harmless character, we doubt, somewhat, its value, as claimed.

sufficient quantity of 20 per cent alcohol, it is allowed to remain there until it is ascertained whether it will become colored or not. If it takes up the color, it is poured off and a quantity of fresh 20 per cent alcohol poured on. Whenever it ceases to take up color, the bisulphite of calcium is added, in quantities corresponding to the nature of the object. In the case of green plant-parts, which are easily bleached, one or two drops of a saturated solution of the bisulphite (which contains 7 to 8 per cent of sulphurous acid) are sufficient for every 200 cubic centimetres of the alcohol; in the case of roots, which turn brown, 3 or 4 times the quantity, or even more, is added.—*Industrie Blätt.* and *Arch. d. Pharm.*, July, 1880.

Useful Tables.

TABLE III.—*For converting inches and fractions into millimetres.*

Inches.	1	1/12	1/8	1/6	1/4	1/3	3/8	5/12	1/2	7/12	5/8	2/3	3/4	5/6	7/8	11/12
0	0	2.1	3.2	4.2	6.4	8.5	9.5	10.6	12.7	14.8	15.9	16.9	19.1	21.2	22.2	23.3
1	25.4	27.5	28.6	29.6	31.8	33.9	34.9	36.0	38.1	40.2	41.3	42.3	44.5	46.6	47.6	48.7
2	50.8	52.9	54.0	55.0	57.3	59.3	60.3	61.4	63.5	65.6	66.7	67.7	69.9	72.0	73.0	74.1
3	76.2	78.3	79.4	80.4	82.6	84.7	85.7	86 8	88.9	91.0	92.1	93.1	95.3	97.4	98.4	99.5
4	101.6	103.7	104.8	105.8	108 0	110.1	111.1	112.2	114.3	116.4	117.5	118.5	120.7	122.8	123.8	124.9
5	127.0	129.1	130.2	131.2	133.4	135.5	136.5	137.6	139.7	141.8	142.9	143.9	146.1	148.2	149.2	150.3
6	152.4	154.5	155.6	156.0	158.8	160.9	161.9	163.0	165.1	167.2	168.3	169.3	171.5	173.6	174.6	175.7
7	177.8	179.9	181.0	182.0	184.2	186.3	187.3	188.4	190.5	192.6	193.7	194.7	196.9	199.0	200.0	201.1
8	203.2	205.3	206.4	207.4	209.6	211.7	212.7	213.8	215.9	218.0	219.1	220.1	222.3	224.4	225.4	226.5
9	228.6	230.7	231.8	232.8	235.0	237.1	238.1	239.2	241.3	243.4	244.5	245.5	247.7	249.8	250.8	251.9
10	254.0	256.1	257.2	258.2	260.4	262.5	263.5	264.6	266.7	268.8	269.9	270.9	273.1	275.2	276.2	277.3
11	279.4	281.5	282.6	283.0	285.8	287.9	288.9	290.0	292.1	294.2	295.3	296.3	298.5	300.6	301.6	302.7

TABLE IV.—*For converting metres into inches.*

Metres.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.
0	0	39.4	78.7	118.1	157.5	196.8	236.2	275.6	315.0	354.3
10	393.7	433.1	472.4	511.8	551.2	590.5	620.9	669.3	708.7	748.0
20	787.4	826.8	866.1	905.5	944.9	984.2	1023.6	1063.0	1102.4	1141.7
30	1181.1	1220.5	1259.8	1299.2	1338.6	1377.9	1417.3	1456.7	1496.1	1535.4
40	1574.8	1614.2	1653.5	1692.9	1732.3	1771 6	1811.0	1850.4	1889.8	1929.1
50	1968.5	2007.9	2047.2	2086.6	2126.0	2165.3	2204.7	2244.1	2283.5	2322.8
60	2362.2	2401.6	2440.9	2480.3	2519.7	2559.0	2598.4	2637.8	2677.2	2716.5
70	2755.9	2795.3	2834.6	2874 0	2913.4	2952.7	2992.1	3031.5	3070.9	3110.2
80	3149.6	3189.0	3228.3	3267.7	3307.1	3346.4	3385.8	3425.2	3464.6	3503.9
90	3543.3	3582 7	3622.0	3661.4	3700.8	3740.1	3779.5	3818.9	3858.3	3897.6

TABLE V.—*For converting inches into millimetres.*

Inches.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.
0	0	25.4	50.8	76.2	101.6	127.0	152.4	177.8	203.2	228.6
10	254.0	279.4	304.8	330.2	355.6	381.0	406.4	431.8	457 2	482.6
20	508.0	533.4	558.8	584.2	609.6	635.0	660.4	685.8	711.2	736.6
30	762.0	787.4	812.8	838.2	863.6	889.0	914.4	939.8	965.2	990.6
40	1016.0	1041.4	1066.8	1092.2	1117.6	1143.0	1168.4	1193.8	1219.2	1244.6
50	1270.0	1295.4	1320.8	1346.2	1371.6	1397.0	1422.4	1447.8	1473.2	1498.6
60	1524.0	1549.4	1574.8	1600.2	1625.6	1651.0	1676.4	1701.8	1727.2	1752.6
70	1778.0	1803.4	1828.8	1854.2	1879.6	1905.0	1930.4	1955.8	1981.2	2006.6
80	2032.0	2057.4	2082.8	2108.2	2133.6	2159.0	2184.4	2209.8	2235.2	2260.6
90	2286.0	2311.4	2336.8	2662.2	2387.6	2413.0	2438.4	2463.8	2489.2	2511.6

Calculated by Prof. H. A. Newton. *Smithsonian Institution Report for* 1865.

Preserving-Liquid for Plants and their Parts.—Prof. J. Nessler strongly recommends for this purpose a liquid composed of 20 per cent alcohol, containing a small amount of bisulphite of calcium. He has used this for several years with complete success. Alcohol is, of course, well known as a preservative; but, heretofore, it has not been properly used, being either employed too strong, in which case it abstracted water from the substances immersed in it and thereby altered their form, or being used so that the influence of air, which may dissolve in the alcohol, was not neutralized.

After pouring on the plants, or parts to be preserved, a

Vaccinium Crassifolium as Diuretic.—Dr. E. A. Anderson believes that he is the first to introduce *Vaccinium crassifolium* (vel *repens*) as a diuretic. He gives a botanical description of it, stating that it resembles Uva Ursi. Large doses of the decoction are followed by profuse diuresis: the bitartrate of potassium may with advantage be given in combination with it in suitable doses. The author has not studied the action of the remedy carefully; he merely deduces from clinical observation that it is a diuretic, and acts efficiently in removing dropsical effusions.—*N. Y. Med. J.*, from *N. Car. Med. J.*

On the Effects and Uses of Hydrobromate of Homatropine. — DR. HENRY S. SCHELL, of Philadelphia, has made some critical experiments and tests to determine the exact effects of the new mydriatic, hydrobromate of homatropine,* upon the eye and to ascertain its differences from those of atropia and duboisia. Both of the latter, though, indeed, invaluable, nevertheless have some properties which often render their use inconvenient and even distressing.

Atropia sulphate, for instance, when used daily for some length of time, occasionally produces a granular condition of the tarsal conjunctiva, which inflames the cornea and sadly interferes with recovery. When used to suppress the accommodation, during an inquiry into the state of the refraction, the effects of a single application often lasts for ten days, and in consequence of the dilatation of the pupil and the inability to focus the eye upon near objects, the patient remains for that length of time practically blind, so far as reading, writing, or other close occupation is concerned, and subject also to the well-known disagreeable feelings attendant upon the entrance of a flood of light into the unguarded eye. In addition to this, so large a quantity of the drug is often required to produce the desired local effect, that the general system becomes involved, and the patient suffers from constant dryness of the throat and mouth, flushing of the face, acceleration of the circulation, feelings of languor, and even from nausea and vomiting.

Duboisia sulphate is more convenient for use in examinations of the refraction, as its action is quicker and its effects sooner over. These last only about one-half as long as those of atropia. But in the use of duboisia also, we are often obliged to employ so much locally that the patient is made to feel giddy, sometimes to such an extent that it is unsafe to let him go into the streets alone for an hour or more.

The author then gives the details of 11 cases, from which he draws the following conclusions:

1. Hydrobromate of homatropine is not well adapted to the treatment of inflammatory or traumatic affections of the eye, on account of the conjunctival irritation it produces.

2. It is especially adapted to the production of that temporary dilatation of the pupil and paralysis of the ciliary muscle which is so often required in examining the condition of refraction.

3. The best solution to use is one containing 16 grains to the fluid ounce of distilled water. From 1 to 5 drops of such a solution may be required to produce the desired effect, according to the strength and activity of the ciliary muscle.

4. Under the influence of a full dose the pupil attains its maximum dilatation in about twenty minutes.

5. With a full dose the accommodation begins to fail in about ten minutes and is usually totally suppressed in a half hour, although exceptional cases may require an hour. This total suppression lasts about three hours; the accommodation then gradually recovers itself, and is fully in action again at the end of from ten to thirty hours from the time of the last instillation.

6. The local action of the mydriatic is not accompanied by any unpleasant effects upon the general system.—*Phila. Med. Times*, Oct. 9th.

Bicarbonate of Ammonium as an Impurity in Bicarbonate of Sodium.—A. KOSTER has met with some English bicarbonate of sodium which stood all the tests of the Germ. Pharm., even that for monocarbonate by means of magnesium sulphate, excepting only the test by corrosive sublimate, with which is produced, at once, a copious white precipitate. On analysis, the salt in question was found to contain 3.98 per cent of ammonium bicarbonate. The presence of the latter is probably to be ascribed to the fact that the salt was made by Leblanc's so-called ammonia process.—*Arch. d. Pharm.*, 1880, July 31st.

* See NEW REM., 1880, p. 297; 336.

New Substitute for Rubber.—This artificial composition, which answers the purpose of genuine caoutchouc or gutta-percha, can be employed, according to Dankworth and Sanders, of St. Petersberg, either alone or in connection with other resinous substances. According to Ackermann's *Gewerbezeitung*, this new product affords an inexpensive means for a perfect isolation of wires for electrical purposes. The composition is elastic, tough, not so sensitive to external influences as caoutchouc or gutta-percha, and is not injured by high pressure or high temperature. It is prepared in the following manner:

A quantity of coal-tar oil, or equal parts of coal- and wood-tar oils, which is to constitute a third part of the whole mixture, is poured into a large kettle, together with an equal quantity of hemp oil, and is heated for several hours, either over steam or an open fire, to a temperature which lies between 252° and 288° F. (it should not exceed the latter), until the mass becomes so ductile that it can be drawn in long threads, and the remaining third, consisting of a quantity of linseed oil, which has been thickened by boiling, is then added. With this composition, from five to ten per cent of ozokerite and some spermaceti should be mixed. The mass is then heated again for some hours at the same temperature as above, and finally, from seven to twelve per cent of sulphur is added. The mixture thus obtained is cast into forms, and treated the same as caoutchouc. The proportions of the three oils may be slightly varied, according to the practical purposes for which the composition is to be used.—*Scient. Amer.*

Treatment of Ozæna.—W. PUGIN THORNTON strongly recommends the following liquid to be applied to the nasal passages by means of the spray:

℞ Sodii carbonatis	ʒ i
Sodii boratis	ʒ i
Liq. sodæ chlorinat.	ʒ ½
Glycerini	fl. ʒ ʒ½

Lennox-Browne directs, for the removal of the nasal incrustation of persons affected with ozæna, to syringe out the nostrils several times daily with a luke-warm emollient solution, or a weak solution of salicylate of sodium; afterwards he applies the following by means of a brush. The nasal passages should be kept constantly clear and open, and should not be stopped with a tampon.

℞ Iodoformi	gr. 5
Ætheris	min. 12
Vaselini	ʒ i
Ol. rosæ	gtt. 5

—After *Monit. d. Médecine.*

Crystalline and Amorphous Oxides of the Alkaline Earths and of Zinc.—G. BRUEGELMANN some years ago furnished the proof that the hitherto supposed *amorphous* monoxides of calcium, strontium and barium, if they are prepared by heating their *nitrates*, always appear as regular cubic crystals, and that oxide of zinc, obtained in the same manner, always appears in hexagonal pyramids. He has now also found the same to be the case with the oxide of barium. His results may be summarized thus:

Lime (calcium oxide) is obtained amorphous from the hydrate and carbonate, but from the nitrate in regular cubes (with edges up to 1.5 millimeters in length); spec. gr. 3.25.

Strontium oxide, amorphous from the hydrate and carbonate; spec. gr. 4.51. From the nitrate in cubes (with edges up to 0.5 mm. in length); spec. gr. 4.75.

Baryta, in mono- or bi-axial crystals from the hydrate; spec. gr. 5.321. From the nitrate in regular (microscopic) cubes; spec. gr. 5.72.

Magnesia is always obtained amorphous; spec. gr. 3.42.

Zinc oxide, amorphous from the hydrate and carbonate; spec. gr. 5.47; from the nitrate in hexagonal (microscopic) pyramids; spec. gr. 5.78.—*Zeitsch. f. anal. Chem.*, 1880, 283.

BIBLIOGRAPHY.

HISTORICAL SKETCH OF THE PROGRESS OF PHARMACY IN GREAT BRITAIN. By JACOB BELL and THEOPHILUS REDWOOD. London: Printed for the Pharmaceutical Society of Great Britain. 1880. 8vo, pp. 418.

THE preface states that the first part of this work was written by Jacob Bell, in 1842, as an introduction to the *Pharmaceutical Journal*. The latter part, by the desire of the Pharmaceutical Council, has been made to cover the period of time from the founding of the Pharmaceutical Society. The record begins with the passage of the "Act for the Appointing of Physicians and Surgeons," passed in 1511, and includes all the Acts of Parliament bearing upon the subject, and a description of all the notable events and circumstances that have contributed to the status of the pharmaceutical profession in Great Britain at the time of the completion of the record, in the passage of the Pharmacy Act of 1868.

Much of that portion of the work relating to early times, contains graphic accounts of the ignorance, cupidity, and quarrels of the older physicians and apothecaries, and of their efforts to outwit each other in order to improve their practices or advance their individual interests.

Later on, the evidence of earnest consideration of public welfare becomes apparent, and through the latter part, the endeavor to place the practice of pharmacy on a secure basis, to advance the qualifications of those engaged in it, and to conciliate opposing interests is well described.

The book will interest all who have at heart the progress of either pharmacy or therapeutics, and should be extensively known in this country, in order that pharmacists here may use the experience of others in avoiding the errors into which they were led.

The earlier portion of this history, written by Mr. Bell, was published in 1842, as an introduction to the *Pharmaceutical Journal*, the latter part, now issued for the first time, brings the account down to the Pharmacy Act of 1868. Although the greatest amount of interest for the general reader centres in the early history, the whole will repay perusal. The book is handsomely published, and should find a place in every pharmaceutical and medical library.

DIAGNOSIS AND TREATMENT OF EAR-DISEASES. By ALBERT H. BUCK, M.D., Aural Surgeon to the New York Eye and Ear Infirmary, etc. New York: Wm. Wood & Co., 1880, 8vo, pp. 411.

THIS book belongs to the series of "Wood's Library of Standard Medical Authors." Its author has for some time been known by his contributions to the literature of the subject, relating to the histology of the auditory apparatus, and also to the pathology and treatment of ear affections.

The work embraces a sketch of the physiology of the organ of hearing, directions for the examination of patients, and chapters relating to diseases of the auricle; of the external auditory canal; methods of examining the middle ear; diseases (non-purulent and purulent) of the middle ear; fractures of the temporal bone, diseases of the mastoid process; miscellaneous conditions of the drum-membrane, ossicles, and tympanic cavity, and the different forms of aural disease in which the labyrinth is believed to be involved.

ANNUAL REPORT OF THE SUPERVISING SURGEON-GENERAL OF THE MARINE-HOSPITAL SERVICE OF THE UNITED STATES for the fiscal year 1880. Washington: Government Printing Office, 1880, 8vo, pp. 218.

IN addition to the usual medical and financial statistics, the volume contains "A Sanitary Report of the United States Marine Hospital at St. Louis," "Report of a Case of Color-Blindness," "Reprints of Congressional Reports upon Pending Bills relating to the Marine-Hospital Service," and "Opinions from Collectors of Customs and Others Concerning the Method of Collecting Marine-Hospital Dues."

FATAL POISONING BY MUSHROOMS. By ADOLPH KESSLER, M.D. 8vo, pp. 6. Reprinted from the *Am. Journ. of Med. Sci.*

THE species of mushrooms that gave rise to the poisoning is not mentioned, but the author notes the favorable effects following the hypodermic use of atropine.

THE SPECIALIST AND INTELLIGENCER is the title of a new twelve-page journal, published monthly in Philadelphia by Presley Blakiston, and under the editorial management of Charles W. Dulles, M.D. The price is $1.50 per annum. It is the successor of the *Intelligencer*.

A TREATISE ON DIPHTHERIA. By A. JACOBI, M.D., Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, etc. New York: Wm. Wood & Co., 1880, 8vo, pp. 252.

THE author, who is widely known as one of our ablest authorities on children's diseases, states that the present work is based upon personal observation of some thousands of cases, and may be considered to be an enlarged edition of a monograph on the same subject, published in Gerhardt's *Handbuch der Kinderkrankheiten*, published in 1878. In considering the subject, the author goes over the History, Etiology, the Manner of Infection, Contagion and Incubation, Symptoms, Anatomical Appearances, Diagnosis, Prognosis, and Treatment.

The latter is declared by the writer to be based on general principles, each case demanding special attention, and he emphasizes the importance of not losing time in the administration of remedies, or failing through smallness of doses to get decided therapeutical effects. In his experience, three deaths occur from sepsis or exhaustion to one from laryngeal stenosis. A three-year-old child can comfortably take from 30 to 150 grams of cognac, or 1 to 5 grams of carbonate of ammonium, or a gram of musk or camphor in twenty-four hours, and in the septic form, the intoxicating effect of alcohol is declared to be out of the question. Venesection is unqualifiedly condemned. So is the use of calomel. Quarantine is urged as essential to the safety of others. The chlorates of potassium or sodium are used by him in nearly every case in which pharyngitis or stomatitis exist. Two grams of the former is a sufficient daily dose for a child of two or three years, and 1¼ grams (or 1 scruple) for a baby of one year. The use of potassium chlorate in large doses is opposed on the ground of its tendency to cause nephritis. The author doubts the value of quinine as a means for checking development of bacteria, and, indeed, expresses doubt of the importance of these bodies as a cause of the trouble. Very complete directions are given for the hygiene and management of the patient; and under the head of "Special Treatment," nearly all the remedies that have at one time or another been recommended, are discussed in a completeness not always met with in medical writings of the present day.

MARTIN'S DIRECTORY OF THE DRUGGISTS OF THE UNITED STATES AND CANADA. 1880–81. Containing Lists of Druggists, Wholesale and Retail, and Various Branches Connected with the Drug Trade. New York: Chas. S. Martin, Publisher, 46 Cortlandt St. 1880. 8vo, pp. 520. $6.00.

THE publisher of this work has for some time made a specialty of perforated addresses, in sheets, relating to several professions and kinds of business, and which are being very largely employed by those who desire to send circulars or samples to those who are specially interested. The book before us shows how extensive the operations of the establishment must be, and that the system of canvassing employed for the making and revising of the lists must be very elaborate, in order to keep pace with the changes that occur. A cursory glance at its pages is

alone sufficient to show that this volume should be in the hands of all who have business relations with druggists generally.

It is clearly and handsomely printed, and so arranged as to facilitate reference to its contents.

TREATISE ON THERAPEUTICS. By A. TROUSSEAU and H. PIDOUX. Translated from the French by D. F. LINCOLN, M.D. Ninth Edition, Revised and Enlarged with the Assistance of CONSTANTINE PAUL, Prof., etc. Vol. III. New York: William Wood & Co. 1880. 8vo, pp. 379.

THIS is one of the "Library of Standard Medical Authors," and is the completing volume of the work. Its chapters relate to Anæsthetics, Antispasmodics, Neurasthenic Tonics, Excitants, Sedatives and Contrastimulants, and Anthelmintics.

A MANUAL OF MINOR SURGERY AND BANDAGING. By CHRISTOPHER HEATH, F.R.S.C., etc. Sixth Edition, Revised and Enlarged, with One hundred and Fifteen Illustrations. Philadelphia: Lindsay & Blakiston. 1880, 8vo, pp. 342. $2.00.

THIS is a book that no student of medicine can afford to be without. Even in its earlier forms, it was among the best manuals of the kind published; as it now appears, it is *the* best.

NEW PREPARATIONS: A Monthly Journal of Medicine. Devoted to the Introduction of New Therapeutic Agents. Edited by WILLIAM BRODIE, M.D. Vol. III. Detroit, Mich.: Geo. S. Davis. 1880. Large 8vo, pp. 322.

In addition to our usual exchange copies, we are in receipt of a bound volume of *New Preparations* for 1879, forming a handsome and useful work for reference. Being devoted to the introduction of new remedies rather than to the increase of our knowledge respecting those generally employed, its pages contain much that may prove of ephemeral interest, but, at the same time, it is desirable to know what has been said of these substances, in order that future workers may economize their efforts.

AN INTRODUCTION TO PHARMACEUTICAL AND MEDICAL CHEMISTRY. Part I. (Theoretical and Descriptive) Arranged on the Principle of the Course of Lectures on Chemistry as Delivered at the South London School of Pharmacy. By DR. JOHN MUTER, M.A., F.C.S., F.I.C., etc. Second Edition, Rearranged. London. Published at the School. Philadelphia: Presley Blakiston, 1880, royal 8vo, pp. 216.

THE first edition of this work was issued only a few years ago, and since then has found so much appreciation that a second edition has become necessary. The author, who is President of the Society of Public Analysts, and thoroughly at home in his branch of science, has rearranged the subject-matter of the work so as to comprise the *theoretical* and *descriptive* portion in the first part, and the *analytical* and *practical* portion in the second part, the former being mainly intended for study at home, and the other for the laboratory.

The descriptions and facts given are stated very clearly in precise and logical arrangement, and are illustrated, whenever necessary or practicable, by chemical equations. Paper and printing are excellent. The work will, no doubt, form a useful addition to the library of the student or the analyst.

ZUR GESCHICHTE DES CHINIDINS UND CINCHONIDINS UND NORMIRUNG DER NOMENCLATUR DIESER ALKALOIDE. Von DR. G. KERNER. Reprint fr. *Arch. der Pharm.*, XIII., No. 4.) 8vo, Halle, 1880, pp. 16.

UEBER DIE PRUEFUNG DES KÄUFLICHEN SCHWEFELSAUREN CHININS AUF FREMDE CHINA-ALKALOIDE. Von DR. G. KERNER. (Reprint fr. *Arch. der Pharm.*, XIII., No. 3.) Halle, 1880, 8vo, pp. 22.

Both of the preceding were received from the author.

ZWEITER BERICHT UEBER DIE THÄTIGKEIT DER VOM DEUTSCHEN APOTHEKER-VEREIN zur Berathung über die Reform der Pharm. Ausbildung niedergesetzten Commission und des aus derselben gewählten Ausschusses. (Committee: Dr. C. Bedall, Prof. Dr. E. Reichardt, Mr. Friedrich Siebert, Mr. Theodor Pusch.) Halle, 1880, 4to, pp. 58.

VERGLEICHENDE UNTERSUCHUNG EINIGER INDISCHEN HANDELSSORTEN DES ARABISCHEN GUMMI. Von Mag. Pharm. EMIL MASSING in Dorpat. Reprinted from the *Archiv der Pharmacie*. 8vo, pp. 15.

VERSUCHE UEBER DIE WIRKUNG DES PEPSINS auf einige animalische und vegetabilische Nahrungsmittel. Inaugural Dissertation von FRIEDERICH KESSLER, M.D. Dorpat, 1880, 8vo, pp. 49.

DAS VERHALTEN DES SCHIMMELGENUS MUCOR ZU Antisepticis und einigen verwandten Stoffen, mit besonderer Berücksichtigung seines Verhaltens in zuckerhaltigen Flüssigkeiten. Von BRONISLAW WENCKIEWICZ. Dorpat, 1880, 8vo, pp. 51.

For the three foregoing pamphlets we are indebted to the kindness of Prof. Geo. Dragendorff.

TRANSACTIONS OF THE MEDICAL AND CHIRURGICAL FACULTY OF THE STATE OF MARYLAND, at its Eighty-second Annual Session, held at Baltimore, Md., April, 1880, 8vo, pp. 216.

CONTAINS an Inaugural Address by the President, Dr. S. C. Chew, on Medicine in the Past and Present, an Annual Address by Prof. J. W. Mallet, on The Claims of Science for its own Sake upon the Medical Profession, and the reports of the various Sections, embracing, among others, the following papers: The Use of the Sphygmograph in Practice, A Novel Case of Hemorrhage During Labor, What can be Done for our Imbeciles? Optico-Ciliary Neurotomy: the Proposed Substitute for Extirpation of a Lost and Painful Eyeball, The Extraction of Cataract within the Capsule, Based on Two Hundred Operations by this method, Clonic Spasm of the Muscles of the Arm and Trunk, The Use of Caustics in Dermatological Practice with Special Reference to the Treatment of New Growths, and Diagnosis of Malignant Tumors of the Upper Jaw in Youth.

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE STATE OF TENNESSEE, at its Forty-seventh Annual Meeting, 1880. Nashville, 1880, 8vo, pp. 158, iii.

Besides the usual minute of proceedings, the President's address, etc., the report contains papers on The Use of the Obstetric Forceps; Open Treatment for Amputation, Pyæmia and Septicæmia, Femoral Hernia, Hypodermic Medication, Hypermetropia, Iodine a Substitute for Quinia, Surgical Dressings, Insanity Dependent upon Physical Disease, A Case of General Cirrhosis, Traumatic Cataract, Bowel Disorders of Infantile Life, etc.

PROCEEDINGS OF THE TENTH ANNUAL MEETING OF THE NEW JERSEY PHARMACEUTICAL ASSOCIATION. Held in Jersey City, May 19th and 20th, 1880. Camden, 1880, 8vo, pp. 52.

This well-made report contains the "Pharmacy Act" as now amended, the Act of Incorporation, Code of Ethics, Lists of Officers and Members, the Minutes, etc., and the following papers: Medical Criticism, What shall be Done to Encourage our Young Men to become Better Pharmacists? What Officinal or Other Plants are Indigenous in this State and can be Gathered to Prove Profitable, and To what Extent is it Practicable for Pharmacists to manufacture their own Chemicals?

PROCEEDINGS OF THE CONNECTICUT PHARMACEUTICAL ASSOCIATION at the Fourth Annual Meeting, Held in New Haven, Ct., February, 1880. Also the Constitution, By-laws, and Roll of Members, 8vo, pp. 75.

THE Appendix contains An Act Relating to the Sale of Medicines and Poisons, Indigenous Plants of Connecticut, Stores and Better Pharmacists, Beeswax and its Adulterations, Sale of Liquors by Druggists and Pharmacists, Elixir of Pepsin with Bismuth, etc., and a List of Queries to be answered.

NOTES, QUERIES AND ANSWERS.

Under this heading we shall, to the best of our ability, endeavor to answer such questions addressed to us, as come within the scope of this journal, provided they are accompanied by the name and address of the writer. Answers to queries received after the 5th of the month will lie over until the next issue. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for the formula of an unusual, patented, or proprietary compound, always accompany the query with any information you may already possess regarding the locality in which it is used, its use and reputed effects, in order to enable us to make inquiry without waste of time and labor. When it can conveniently be done, send also a specimen of the label used on packages of the compound.

No. 817.—**Sachet Powders** (T. S.).

The following formulæ are recommended by Piesse:

Millefleur Sachet.

Lavender flowers, ground,
Orris root,
Rose leaves,
Benzoin.....of each 1 lb.
Tonka bean,
Vanilla,
Sandal wood.....of each ¼ lb.
Musk and civet, each.....2 drachms.
Cloves, ground..... ¼ lb.
Cinnamon,
Allspice.....of each 2 oz.

Maréchale Sachet.

Sandal wood, powd.....½ lb.
Orris root, " .....½ "
Rose leaves, ground.....¼ "
Cloves, " .....¼ "
Cassia bark, " .....¼ "
Grain musk.....½ drachm.

Mousseline Sachet.

Vetivert, powd..... 1 lb.
Sandal wood, ground..... ½ "
Orris root " ..... ½ "
Black currant leaves..... ½ "
Benzoin, powd..... ¼ "
Oil of thyme..... 5 drops.
" rose..... ½ drachm.

Portugal Sachet.

Orange peel, dried, ground..... 1 lb.
Lemon peel, " " ..... ½ "
Orris root, powd ..... ½ "
Oil of orange peel..... 1 oz.
" Neroli..... ¼ drachm.
" lemon grass..... ¼ "

Pot Pourri.

(A mixture of dried flowers and spices *not* ground.)

Lavender, dried..... 1 lb.
Rose leaves, whole..... 1 "
Orris root, coarse powd..... ½ "
Cloves, broken..... 2 oz.
Cinnamon, broken..... 2 "
Allspice, broken..... 2 "
Table salt..... 1 lb.

No. 818.—**Luminous Paint** (Several inquirers).

We learn from a communication in the *Chemiker-Zeitung*, that Balmain's patent for the manufacture of luminous paint is in the hands of Ihlee and Horne, in Aldermanburg. The price of a pound is at present 28 shillings, which will be considerably reduced in the future, as the demand increases. The color is very sensitive to light. An induction spark makes it at once luminous in the dark. Daylight has likewise an energetic action upon it; red or yellow light has none, green a considerable, and violet the most. The intensity and duration of luminousness depend on several circumstances; the former on the quantity and quality of the light to which it was exposed, though it need only be exposed to it for a very brief space of time. If the color is exposed to direct sun or magnesium light, a large portion of the lustre disappears, but its luminousness endures much longer. The *Industrie Blätter* gives (after the *Gartenlaube*) an interesting instance of the adage, "There is nothing new under the sun." F. V. Dickins has come across a passage in a Chinese-Japanese encyclopedia, where, under the article *Ye* (painting), the following is related: A certain Sü Ngoh possessed a *painted* ox which left its frame every morning to go grazing, and returned to its frame at night to sleep there. The picture came into the possession of Emperor Tai -Tsung, of the Sung dynasty (976–998 A.D.), who showed it to his courtiers and demanded from them an explanation, which no one could give. Finally a Buddhist priest stated that the Japanese found a luminous substance in a species of oyster (Canton's phosphorus was formerly prepared by heating together oyster-shells and sulphur), which they collected and mixed with paint so that they were invisible by day and only visible at night. The author of the encyclopedia adds that the picture of the ox was doubtlessly painted with such a paint.

No. 819.—**Preparation of Bougies** (Dr. W. S. A.)

There are a number of formulæ published for the preparation of these instruments, but *experience* is an important factor, as unskilled persons are seldom able to produce a satisfactory article without considerable practice. We select the following:

1. Amber (melted), 1 part; boiled linseed oil, 3 parts; mix, cool a little, and, further, add of oil of turpentine, 1 part; spread the mixture, at three successive intervals, upon loose spun-silk cord or web, dry in a heat of 150° F., and repeat the process until the instrument has acquired the proper size; lastly, polish it, first with pumice-stone, and afterwards with tripoli and oil. This is the original receipt of the once-celebrated French professor Pickel, and is still generally used, slightly modified, on the Continent. At the present time, in Paris, a little caoutchouc, equal to about one-twentieth of the weight of the oil employed, is generally added. For the best elastic bougies, the process usually occupies from six to eight weeks, to allow full time for the drying and hardening of the composition. When the bougie is required to be hollow, a piece of polished metallic wire is introduced into the axis of the silk; or tin-foil is rolled around the wire and the composition, applied as before. When dry and hard, the wire is withdrawn.

2. Yellow wax, 2 parts; red lead, 3 parts; olive oil, 6 parts; boil them together slowly until combination takes place; strips of soft linen (rather wider at one end than the other) are then dipped into the composition and rolled up firmly, and finished off on a polished slab. This is Hunter's formula.

No. 820.—**Iodized Cod-Liver Oil** (B. H. W.).

A very good method of combining iodine with cod-liver oil is that recently proposed by Fonssagrives. He recommends to combine iodoform with the oil, because, of all iodine preparations or compounds, this contains the largest percentage of the element. The peculiar flavor and odor of iodoform is masked by the addition of a small quantity of oil of anise. He used the following formula:

℞ Ol. morrhuæ.....gm. 100.00 = fl. oz. 3½.
Iodoformi..... " 0.25 = grs. 4.
Ol. anisi..... gtt. 10 = gtt. 10.

S. A tablespoonful three times a day.

No. 821.—**Belladonna Collodion** (Ana).

This has sometimes been recommended as a substitute for belladonna plaster. It is prepared as follows:

Macerate select belladonna leaves, powdered, 8 oz., in ether, 12 fl. oz., and alcohol (95 per cent), 4 fl. oz., for six

hours. Pack in a percolator, and pour on alcohol until a pint of tincture is obtained; in this dissolve pyroxylin (gun-cotton), 60 grains, and Canada balsam, 240 grains.

No. 822.—**To Mend Broken Wedgewood Mortars** (W. J. T.).

We have answered a similar query very fully before, but will repeat the answer here, with the request that you and others of our readers will oblige us with the results of your practical experience on the subject.

It is easy enough to mend mortars so that they may be used for making emulsions and other light work which does not tax their strength too much. But a mended mortar will hardly be able to stand the force required for powdering hard substances. Good cements for mending mortars are the following:

1. Casein free from fat and washed until no longer acid,
   Silicate of soda solution (waterglass), of each, q. s.

Fill a bottle to one-fourth of its height with damp casein then fill the flask with silicate of soda (waterglass), and shake frequently until the casein is dissolved. The casein should be made by curdling *skimmed* milk and well washing.

2. Glass-flour elutriated.....10
   Fluorspar, powdered and elutriated.....20
   Silicate of soda.....60

Both glass and fluorspar must be in the finest possible condition, which is best done by shaking each, in fine powder, with water, allowing the coarser particles to deposit, and then to pour off the remainder which holds the finest particles in suspension. The mixture must be made very rapidly by quick stirring, and when thoroughly mixed must be at once applied. This is said to yield an excellent cement.

3. Freshly burnt plaster of Paris.....5 parts.
   Freshly burnt lime.....1 part.
   White of egg.....sufficient.

Reduce the two first ingredients to a very fine powder and mix them well; moisten the two surfaces to be united with a small quantity of white of egg to make them adhesive; then mix the powder very rapidly with white of egg and apply the mixture to the broken surfaces. If they are large, two persons should do this, each applying the cement to one portion. The pieces are then firmly pressed together and left undisturbed for several days. The less cement is used the better will the articles hold together.

4. If there is no objection to a dark-colored cement, the very best that can be used is probably *marine glue*. This is made thus:

10 parts of caoutchouc or india-rubber are dissolved in 120 parts of benzine or petroleum naphtha with the aid of a gentle heat. When the solution is complete, which sometimes requires 10 to 14 days, 20 parts of asphalt are melted in an iron vessel and the caoutchouc solution is poured in very slowly in a fine stream and under continued heating, until the mass has become homogeneous and nearly all the solvent has been driven off. It is then poured out and cast into greased tin moulds. It forms dark-brown or black cakes which are very hard to break. This cement requires considerable heat to melt it; and to prevent it from being burnt it is best to heat a capsule containing a piece of it first on a water-bath until the cake softens and begins to be liquid. It is then carefully wiped dry and heated over a naked flame, under constant stirring, up to about 300° F. The edges of the article to be mended should, if possible, also be heated to at least 212° F., so as to permit the cement to be applied at leisure and with care. The thinner the cement is applied the better it binds.

No. 823.—**Mrs. Winslow's Soothing Syrup** (B. B. B.).

Dr. H. Hager some years ago stated that this nostrum was composed of 8 parts of syrup and 1 part of a tincture made by extracting 10 parts of fresh ground fennel and 1 part of oil of fennel with 60 parts of 90% alcohol. Other analysts, however, have reported that they have found morphia, the usual amount obtained being about a grain to the fluid ounce. In spite of this large quantity and the frequent serious results following the use of the syrup, its manufacture and sale still flourish and no serious steps have yet been taken to prevent its promiscuous use.

No. 824.—**To Paste Labels on Tin** (W. H. R.).

1. To mucilage, starch-paste, dextrin- or tragacanth-paste add a small quantity of ammonia.

2. Or add a small amount of tartaric acid. A little glycerin had better be added also. This is the most satisfactory method according to our experience.

3. Or, heat mucilage of gum arabic with a solution of sulphate of aluminium (100 parts of mucilage and 2 parts of sulph. alum.) to boiling; allow the insoluble matter to subside. Then pour off the clear mucilage and add a little glycerin. Tartaric acid will improve this.

4. To every 8 ounces of the paste add 20 drops of antimonious chloride (butter of antimony). This is said to be very effective, but should be used with care.

No. 825.—**Mialhe's Tooth-Powder and Dentrifice** (T. S.).

The formulæ for these are the following:

Sugar of milk, 1,000 part; lake, 10 parts; pure tannin, 15 parts; oil of mint, oil of anise-seed, and oil of orange-flowers, so much as to impart an agreeable flavor to the composition.*

His directions for the preparations of this tooth-powder are: to rub well the lake with the tannin, and gradually to add the sugar of milk, previously powdered and sifted, and lastly, the essential oils are to be carefully mixed with the powdered substances. Experience has convinced him of the efficacy of this tooth-powder, the habitual employment of which will suffice to preserve the gums and teeth in a healthy state. This formula of Mialhe has been recommended especially when the teeth have been blackened by the chalybeates. It would, however, be useful in other cases.

For those who are troubled with excessive relaxation and sponginess of the gums, he recommends the following astringent preparation:

Mialhe's Dentrifice:—Alcohol, 1,000 parts; kino, 100 parts; rhatany root, 100 parts; tincture of tolu, 2 parts; tincture of benzoin, 2 parts; oil of canella, 2 parts; oil of peppermint, 2 parts; oil of anise seed, 1 part.†

The kino and the rhatany are to be macerated in the alcohol for seven or eight days, and after filtration, the other articles are to be added.

A teaspoonful of this preparation, mixed in half a goblet of water, should be used to rinse the mouth after the use of the tooth-powder.

No. 826.—**Oil of Lemon** (Inquirer).

The usual period at which the new supply of each year enters the market is about the end of December. It arrives here (at New York) towards the middle or end of January and beginning of February. By carefully watching the market at this time, advantageous purchases may be made. The market price of the new oil, however, depends on certain contingencies, of which we do not generally receive knowledge until it is too late. The condition of the weather during the winter months, and the condition of the fruit on the trees will often be so unfavorable that only large dealers who have their agents on the spot watching the market will succeed in selecting the most favorable period for buying. Of the different brands of oil of lemon, that known as "Sanderson's" is reputed the best. Oil of lemon is best kept in the original packages, being either copper bottles (Ital. *ramiere;* called in England "jars"), holding 25 to 50 kilos, or smaller tin vessels. As soon as these have to be opened, the oil ought to be transferred to smaller tins or bottles, filled as full as possible, and kept in a cool place.

In addition to this it has been found that the admix-

* Mialhe, *Chimie appliquée à la physiologie et à la thérapeutique.* Paris, 1856, 8vo, p. 638.
† *Ibidem*, p. 638.

ture of a small quantity of alcohol (about 1 fl. oz. to the pound of oil) will preserve oil of lemon, or any oil of the Citrus family, indefinitely. When the oil is wanted for use, without alcohol, the addition of about as much water as had previously been added of alcohol will separate the latter sufficiently for all practical purposes. If the oil has become turbid, or has deposited a whitish sediment, it should be agitated with a little boiling water, and after standing, separated.

No. 827.—**Oil of Orange, Oil of Wintergreen, Oil of Sassafrass** (Inquirer).

The remarks made above about oil of lemon apply also to oil of orange.

Oil of wintergreen and oil of sassafras are both so abundant and cheap, in comparison to the other oils, that unless you wish to buy in very large quantities, the weekly or monthly indications and fluctuations of the market will give you sufficient data to select the proper time for purchasing.

The purity of the above oils may be recognized in the following manner, though, in the case of the oils of the Citrus family, it is impossible to detect the substitution or admixture of one oil with another, except through the taste and odor:

Oil of Lemon: Spec. grav. 0.830 to 0.880. Boils at 170–180° C. (= 339–356° F.). Soluble in absolute alcohol in all proportions. Soluble in 2 parts alcohol, sp. gr. 0.815, and in 10 parts alcohol, sp. gr. 0 830, to slightly turbid solutions. Shaken with water it does not diminish in volume (absence of alcohol).

Oil of Sassafras: Spec. grav. 1.087–1.094. Soluble in 4–5 parts of 90% alcohol; dissolves iodine quietly; is violently acted on by bromine. If 5 to 6 drops of the oil are mixed, in a narrow test-tube, with 25–30 drops of pure concentrated sulphuric acid, the mixture becomes hot, gives off vapor, and forms a reddish-black solution, which, on the addition of alcohol, assumes a dark cherry-red color.

Oil of Gaultheria: Spec. gr. 1.070–1.090. Boils at 200–220° C. (392–428° F.). Addition of nitric acid does not color the pure oil, but it solidifies to colorless crystals of a nitro-compound. A solid crystalline mass is also obtained by agitating the oil with soda or potassa. The aqueous or alcoholic solution is colored deep violet by ferric chloride.

No. 828.—**Extract of Ginger Ale** (R.).

The following formula is recommended:

Into 1 gallon of boiling water put 1 lb. of sugar, 1 oz. of best Jamaica ginger, bruised, ¾ oz. bitartrate of potassium, and 2 lemons, sliced. Stir the ingredients frequently until the water is lukewarm, covering the vessel carefully in the intervals of stirring. Then add ½ to 2 oz. of yeast (liquid), and keep it in a moderately warm place until a brisk fermentation sets in. The next day pour off the liquid, and strain it through flannel. Let it work another day or or two, strain again, and bottle, wiring down the corks.

No. 829.—**Tonic Beer Extract** (R.).

This name does not indicate any special difference from other so-called root-beer extracts.

A root-beer extract is made in various ways, one of which is as follows: Take of sarsaparilla 2 lbs., spicewood (branches of *Laurus Benzoin* L.), ½ lb.; guaiacum chips, 1 lb.; birch-bark, ¼ lb.; ginger, ½ oz.; sassafras, 4 oz.; prickly-ash bark, ½ oz.; hops, 1 oz. Boil them for 12 hours over a moderate fire, or by steam, so that the remaining liquid shall measure 5 gallons, to which add tincture of ginger, according to taste, oil of wintergreen, from ¼ to 1 oz., according to taste, and 1 quart of alcohol. Strain the whole and bottle carefully. To make root beer, 1 quart of the preceding is mixed with 8 oz. of molasses, 2½ gallons of water, and 4 oz. of yeast. It will soon ferment and produce a good drinkable beverage. Wild cherry is frequently added to the above.

No. 830.—**Photographic Hyposulphite Washings and the Reduction of Chloride of Silver to Metallic Silver** (Amateur).

It has been estimated that about three-fourths of the silver contained in the film of photographic prints introduced into a solution of hyposulphite of sodium for the purpose of fixing the picture, are taken up by the "hypo"-solution. Some photographers do not take the trouble to save these washings, for one reason or another, but the great majority either precipitate them themselves, and sell the precipitates, or they sell the old "hypo"-solution itself. In large cities there are certain persons especially engaged in the business of recovering the silver from these solutions. There are various ways of precipitating the silver from the latter. One is to suspend plates of certain metals in the bath, whereby the silver is deposited in a metallic condition. Such metals are zinc and iron. The former is much more active, but it has been found that it does not completely precipitate the silver, and that the precipitate itself is so impure that it requires considerable work to purify it. Probably the best method, and one which is followed by many, is to precipitate the silver as sulphide by the occasional addition (say once a week) of a sufficient amount of this salt to the accumulating "hypo"-solution contained in a large tub, provided with a spigot, some distance from the bottom. When the supernatant solution has become clear, it may be allowed to run away. Whenever the precipitate has accumulated in sufficient quantity, it may be removed. The conversion of this sulphide into metallic silver is a disagreeable process, and is usually left to those who make a regular business of it. Another method is to add a little hydrochloric acid to the waste solution, and afterwards some green sulphate of iron. When the liquid has become clear, on standing, another small quantity of both these agents are added, until no more precipitate makes its appearance. This precipitate, when properly washed, is chloride of silver.

Chloride of silver may be reduced to metal in the following manner: It is put, while moist, or in a pasty condition, into a flat-bottomed basin to the height of about ½ inch; on top of this is placed a zinc-plate, just a little smaller than the inside of the basin. This is then covered with another layer of chloride, another zinc-plate put on top, and finally covered with a third layer of the chloride. Finally, dilute hydrochloric acid (containing 10 to 20% of acid) is poured on, so as to completely cover the contents. It is best to be sure that there is an excess of the acid rather than a deficiency. The whole is left at rest for at least twenty-four hours. At about the end of this time all the chlorine has combined with zinc, and metallic silver is deposited, giving to the paste a blackish color. The whole mass, excepting the remaining pieces of the zinc-plates (if any are left—they are merely washed) are now transferred to a jar, and thoroughly washed by decantation until the water loses every trace of acidity. The washing may be hastened by using hot water, or by puttng the jar over a water- or sand-bath. The decanted water should all be filtered, the filters burned, and the ashes added to the residue. As soon as the washing is completed, all the water possible is decanted, the residuary silver dissolved by nitric acid, the solution diluted with water, filtered, and then evaporated, or simmered down until it thickens. It is then heated a little more, so as to drive out all excess of acid, which is indicated by the cessation of red fumes, and when the residue represents a quietly melting mass, without scum, it may be run into a *perfectly dry*, previously heated cup. This represents an impure nitrate. It is again dissolved in water, filtered, and after the addition of a very small quantity of water, evaporated to the crystallizing point, or cast into moulds, when it will be sufficiently pure for all purposes.

No. 831.—**Fulminating Gold and Fulminates** (J. F. H.).

We are *willing* to state how fulminating gold may be made, but we would at the same time *seriously caution* you from making more than a *few grains at a time*, unless you have a desire of resolving your mortal frame into its component molecules at very short notice.

In the first place, *fulminic acid* ($C_2H_2N_2O_2$) is a com-

pound, produced by the action of nitrous acid upon alcohol in the presence of a salt of *silver* or *mercury* only. Fulminate of silver has the composition $Ag_2C_2N_2O_2$, and fulminate of mercury is $HgC_2N_2O_2$. Both of these are related to the cyanogen group. *Fulminating gold*, however, is called so, not because it is a salt of fulminic acid, but merely because it fulminates, that is, detonates with flame. It is prepared by digesting trioxide or peroxide of gold with ammonia. Magnesia is added to auric chloride (chloride of gold), whereby aurate of magnesium is produced, which is but sparingly soluble. This is well washed with water, and then digested with nitric acid, which dissolves nitrate of magnesium and leaves trioxide of gold behind as an insoluble reddish-yellow powder, becoming chestnut-brown on drying. When this is digested with ammonia, fulminating gold is produced, which, according to Berzelius, has the composition $Au_2O_3.4NH_3.H_2O$.

This compound is *very dangerous*, as it explodes with extreme violence at the slightest friction or elevation of temperature.

No. 832.—**Fluorescing Mixtures** (A. P.).

We are not yet prepared to give the information you desired some time ago. Meanwhile we have requested certain of our friends to oblige us with further data. Whenever we have enough material on our hands, we will communicate it to you.

No. 833.—**Corroding of Stove-Pipes** (G. S. R.).

It is rather difficult for us to draw the line between queries falling within our province to answer, or without. However, so long as the matter can have the remotest bearing on the comfort and well-being of one of our readers, we give him the benefit of the doubt, and answer to the best of our knowledge. Evidently the atmosphere to which your stove-pipes are exposed is impregnated occasionally with vapors which gradually attack the iron, probably acid vapors. There is no better protection than to varnish the stove-pipes either with asphaltum varnish or with black Japan varnish, or with ordinary stove-blacking.

No. 834.—**Fluxing Gold and Silver Ores containing Tellurium, etc.** (J. Th.).

The reply to this query is clearly beyond our province. A satisfactory answer can only be given by some specialist in assaying, after a careful examination of the ore and an estimation of the quantity of tellurium, arsenic, etc., present. There is no use whatever in *suggesting* one method or another. Positive information can be had, but must be obtained from competent authorities, and must be paid for.

No. 835.—**Test for Glucose** (Inquirer).

Among the different tests for glucose, the most commonly employed is that known as Fehling's test (also Trommer's or Barreswill's). For qualitative use, the proportions of the ingredients of the reagent are not of very great importance, excepting that the alkali must always be in excess. But, since the reagent is very often required for quantitative use, it is best to prepare it always in the exact proportions required for the latter:

34.65 gm. of dry, unefflouresced crystals of pure sulphate of copper are dissolved in about 200 cc. of distilled water, the solution poured into a cold solution of 150 gm. of neutral tartrate of potassium in 500 cc. of 10 per cent soda solution (or of sp. gr. 1.140), and the whole diluted to 1,000 cc. with distilled water. This solution, if not very carefully prepared and kept, does not keep long. But it may be preserved almost indefinitely, by at once filling the solution into small vials (say 1 fl. oz.), which must be *entirely* filled, securely corked, and kept in the dark. An additional protection is, to add to the copper solution, before mixing it with the alkaline solution, about 100 cc. of glycerin.

Each cubic centimeter of the reagent corresponds to 0.005 gm. of glucose (and to 0.0067 of lactose, or milk-sugar). It is usually employed thus: 10 cc. of the reagent are diluted with about 50 cc. of distilled water, the mixture heated to boiling (when it must retain its pure blue color, and be entirely bright and transparent, otherwise it is spoiled, and must be thrown away), and the solution containing glucose (previously diluted, so as to contain only between ½ and 1 per cent of the latter) is added in small portions at a time, until, after boiling, the blue color has disappeared, and all cupric oxide has been altered to *red* cuprous oxide, which falls as a precipitate. The end of the reaction is determined by ascertaining that there is neither any glucose remaining nor any undecomposed alkaline copper sulphate. The former would be present if a portion of the filtrate would reduce a fresh small quantity of the reagent; and undecomposed copper sulphate would be present (or, in other words, the reagent would have been added in excess), if a portion of the filtrate should give a brown color with potassium ferrocyanide.

No. 836.—**Lozenges** (O. S. & Co.).

Among the directions for preparing lozenges given in various works, the following, from Cooley's Cyclopedia, seems the most concise and practical, and, as you request it, we will publish it here:

"In the preparation of lozenges, the dry ingredients, separately reduced to a very fine powder, are first perfectly mixed together, and then beaten into a stiff paste with the glutinous liquid employed to give them form; the mass is next rolled out to a desired thickness, and cut into pieces of the proper shape by means of a small cylinder or punch of steel or tin plate, called a lozenge cutter. The newly formed lozenges are lastly dried by placing them on an inverted sieve or frame covered with paper in a dry, warm, and airy situation, and are frequently turned until they become hard and brittle, due care being taken to preserve them from dust and dirt. To prevent the mass adhering to the fingers and utensils during the process of manufacture, a little finely powdered starch, or a very little olive oil, scented with the same aromatic as that contained in the lozenges, may be used.

Mucilage of gum Arabic or of gum tragacanth, thin isinglass sizes, or the strained white of the egg, are the substances usually employed to make the pulverulent materials adhere together. A strained decoction of Irish moss is now frequently used for the same purpose, for inferior qualities. The larger the proportion of gum which enters into the composition of lozenges, the slower they dissolve in the mouth; hence powdered gum is frequently added to the other materials to increase their quality in this respect, as well as to give an additional solidity to those, which, like chalk, for instance, are of a peculiarly dry or crumbly nature. Starch and potato flour are often added to lozenge masses in lieu of a portion of the sugar, and even plaster of Paris is not infrequently employed to give them weight—frauds which may be detected without difficulty.

As a general rule, medicated lozenges should weigh from 8 to 10 gr. each, and a medium dose of their active ingredient should be distributed through the bulk of 6 to 8 of them, in which case 3 to 5 of them may be safely taken as a dose, or sucked during the lapse of 3 or 4 hours. This will be useful in the preparation of those forwhich no established proportions are given. In sending out compounds of this class containing active medicaments, as morphia or opium, the retailer, as well as the manufacturer, should be careful that the quantity contained in each lozenge is plainly marked on the label. [Or, better still, on the lozenge itself.—ED. N. R.]

In lozenges intended for mouth cosmetics or to perfume the breath, ambergris is generally regarded as the most appropriate perfume; but hard smokers frequently prefer cloves and cinnamon, and some ladies give the preference to roses, orange flowers, and orris or violet."

Pharmaceutische Zeitschrift fuer Russland.—This journal will hereafter appear as a weekly, instead, as heretofore, as a fortnightly. The present editor, Mr. E. Rennard, *Mag. Pharm.*, will retire with the conclusion of the current volume, and Mr. Edwin Johnson, *Mag. Pharm.*, will become his successor.

NOVELTIES.

We have already noticed some of the "Druggists' Ten-Cent Novelties" manufactured by Mr. J. J. REQUA of this city. The latest additions to the list are the "**German Corn and Bunion Plasters,**" and "**Camphor-Ice with Glycerin.**" We have no available callosities on which to try the virtues of the former, but they are nicely made, the medicated portion (of which the ingredients are given) being placed in the centre of a disc of thin adhesive plaster. Five plasters are put up in a sliding box, and if they are worth anything at all, they are certainly cheap at the price. The Glycerin Camphor-Ice is nicely made in rectangular cakes, wrapped in tin-foil, and inclosed in pasteboard cases without ends, so that they can readily be pushed out when required for use.

We have had occasion to examine MR. EPHRAIM HOWE'S brand of Alcohol, which is known as "**Spring Water Spirits,**" and have found it to be very pure and fit for the most refined purposes.

Loonen's Tooth Brushes.—Two new varieties of this useful toilet article are received from F. LOONEN & SON, of Paris and London, through their manager, MR. GEO. R. GIBSON, 98 Chambers street, New York. One, having countersunk holes and wire fastenings for the bristles, we have already noticed. The "**Electric Tooth Brush**" is said to "restore the natural color of the teeth, remove impurities, arrest decay, and cure neuralgia and toothache in early stages." The brush is very well made of black whalebone and black bristles, and has inserted in its back a strip of white bone, holding in longitudinal grooves two wires of copper and some other metals. This directions say that it is to be used with nothing but water, but we are inclined to think that the electric current will be more fully developed with a reasonable expenditure of *adeps cubitis* and that it will be of the frictional variety. However that may be, we are confident that the systematic use of the brush morning and night will do all that is claimed for it.

JOHN J. CROOKE & CO., of 163 Mulberry street, New York, send us new styles of their **Embossed Tin-Foils** which excel in beauty anything of the kind heretofore made by them. These goods are already used extensively for all purposes where tin-foil is required as a wrapper; and their elegance cannot fail to lead to their adoption in other cases where an embossed metal surface is desired. In some of the samples the effect is heightened by printing in colors before the embossing is done.

Druggists and pharmacists will find in the **Printed Gummed Cork-Tops** made by GILLAM'S SONS, of 68 N. Third street, Philadelphia, a very handsome addition to their wares. A great variety of sizes and colors of these paper tops have been sent for our inspection, and they certainly are an improvement upon the method of finishing with sealing-wax, as regards both appearance and economy of labor.

COLGATE & CO. send us a New Year's story which tells all about a young man who won his suit through a mistake in the delivery of a box of "**Cashmere Bouquet Toilet Soap**" to his lady-love, instead of the box of French bon-bons, that he had intended for her. We all know the attractive qualities of their perfumes and can easily believe that there is nothing so very improbable in such a fiction. It is an experiment worth trying, if the reader will only take pains to see that his fair one does not get the package of glucose instead.

We have recently read in several exchanges a cautionary note against the harmful effects of too-frequent shampooing upon the growth of hair, and an explanation of its influence in causing baldness, in which we are much inclined to believe. It is true that with the use of soaps and other detergents, the scalp and hair may be thoroughly cleaned, but it is done at the expense of removing from them the fatty matter secreted by the sebaceous glands, upon the presence of which the health and vitality of the hair depends. A far better plan is the employment of a proper hair-brush, and such a one is made by JOHN GOSNEL & CO., of London, and called "**The Patent Trichosaron.**" It is provided with two sets of bristles, viz.: long ones which are relatively fewer in number and somewhat stiffer than the others; and short ones, which are softer in texture. In using this brush, the long bristles serve to detach dandruff and dust from the scalp, while the short ones smooth the hair, brush out the accumulated debris, and spread the fatty secretion along the hairs from their roots to their extremities.

We are informed that the price of these brushes has lately been considerably reduced in this country, so that they need no longer be considered a luxury, but may be bought by any one who wants a real serviceable article. A. S. CUTHBERTSON, 69 West Broadway, N. Y., is the agent for the sale of these goods here.

The importance of visual defects as causes of disturbance of the nervous system, inflammation of the ocular apparatus and appendages, and as impediments to sound mental development is now becoming so well appreciated

Dr. Loring's Test-Glasses.

that the possession of a set of **Test-Lenses,** and a knowlt edge of their use is almost imperative upon the general practitioner. Until quite recently, the acquisition of such a set of lenses required a rather burdensome outlay of money, but within a few months, small sets, capable of answering most practical purposes, have been placed in the market, and there is now no reason why every physician may not become sufficiently expert in the diagnosis of errors of refraction, to satisfy himself of the visual power of his patients.

The latest addition to these cheaper cases of test-lenses is the one here illustrated. It is made by MEYROWITZ BROS., of this city, under the direction of DR. E. G. LORING, of New York, who referred to such a case and its range of usefulness in a paper read before the Medical Society of the State of New York, February, 1879.

This case contains 24 pairs of spherical and cylindrical glasses, a holder, and the necessary test-types. Owing to the fact that the glasses are ground to a decimal scale, a great variety of combinations can be made, and almost any degree of variation from normal vision, due to errors of refraction, can be estimated by means of them. The whole case complete costs but $14.00, and might well be kept in the stock of such druggists as deal in surgical and other instruments.

NEW PATENTS.

[*Complete specifications and illustrations may be obtained of any one or more of the following patents by sending the number, title, name of patentee, and date of issue, with twenty cents for each copy, to the Commissioner of Patents, at Washington, D. C., together with the name and address of the person requesting the same.*]

October 5th, 1880.

232,803. *Soda-Water Apparatus.*—William H. Collins, Chelsea, Mass.

232,807. *Dental Compound for Preventing Pain.*—Herbert E. Dennett, Boston, Mass. Assignor to the Dennett Dental Nabolí Company, Hartford, Ct. A compound of glycerin, tannic acid, and chloral, to be used for preventing pain during the excavating and filling of teeth.

232,835.—*Gelatin Capsule Machine.*—Victor E. Mauger, New York, N. Y., assignor to Mary A. Mauger, same place.

232,858. *Concave Truss.* — Harvey A. Stephenson, Allegheny, Pa.

232,906. *Mucilage or Paste Vessel.*—Charles Sabin, Rockford, Ill. [Described in last number of NEW REM.]

232,932. *Manufacture of Soap.*—Louis Basset, Brooklyn, N. Y., assignor of two-thirds of his right to James G. Newcomb, Hoboken, N. J., and Feargus B. Squire, Brooklyn, N. Y. The process of forming a saponaceous compound, by combining a mineral oil with animal or vegetable fatty matter, or either boracic acid and an alkali.

232,974. *Vulcanized Plastic Compound.* — Alfred B. Jenkins and Charles Jenkins, Boston, Mass. Consists of diatomaceous silica or infusorial earth, India rubber or gutta percha, or either and sulphur, united by vulcanization.

232,977. *Crucible and Cupel Tongs.*—William E. Judson, Cleveland, Ohio.

232,980. *Aërator.*—Heinrich Kupfer, Chicago, Ill.

232,985. *Eyeglass.* Samuel Levin, Pittsburg, Pa., assignor of one-fourth of his right to Nicholas Snyder, same place.

232,991. *Method and Apparatus for Obtaining Ammonia.*—Hans P. Lorenzur, Friedrichstadt, Schleswig Holstein, Germany. The process in recovering ammonia from nitrogenous substances by distillation, which consists in developing the ammonia before fixation by bringing the gas in contact with incandescent oxide of calcium.

232,988. *Refrigerator Bottle-Rack.*—Caleb W. Mitchell, Saratoga Springs, N. Y.

233,011. *Foot-Bath.*—Helen D. Partridge, Brooklyn, N. Y.

9,398. *Nozzle-Stopper for Oil Cans.* Dover Stamping Co., Boston, Mass., assignee of Josiah H. Myer, deceased.

October 12th, 1880.

233,063. *Medicinal Compound.*—Henry J. Boughton, Albany, Oregon. Consists of phosphate of lime, chloride of sodium, phosphate of potassa, sulphate of potassa, iodide of potassa, iodide of iron, phosphate of soda, sulphate of soda, water, and syrup of orange.

233,083. *Hog-Cholera Remedy.*—William H. Emerick, near Hamilton, Ohio. Consists of oil-cake, meal, sulphur, resin, assafœtida, cream of tartar, Cayenne pepper, and carbonate of iron.

233,153. *Combined Lounge and Bath.*—James H. Lea Mond, New York, N. Y.

233,185. *Medicine Spoon.*—Thomas M. Baker, Washington, D. C.

233,189. *Steam-Jacket Kettle.*—William N. Barrows, Philadelphia, Pa.

233,189. *Bottle Filler.*—George D. Barr, Greenville Court House, S. C.

233,279. *Double Acting Pump Syringe.* — Jonathan Ramsey, Jr., West Meriden, Ct.

233,303. *Bottle-Stopper.*—Andrew Walker, Cincinnati, O.

233,304. *Bathing Apparatus.*—Henry D. Wood, Worcester, Mass.

9,411. *Distemper Paint.*—Christopher G. Dodge, Jr., Philadelphia, Pa. Consists of Paris white, glue, white soap, chloride of calcium, carbolic acid, and water.

FORMULÆ.

Wilkinson's Ointment.—

℞ Sulphuris sublimati,
Picis liquidæ,
Adipis purificati..... ...āā ℥ ij.
Cretæ præparatæ.... ..... ℥ i.
Ammon, hydrosulph..... .... ʒ ss.
M. et ft. ung.

Substitute for "Chlorodyne."—PROF. W. F. MCNUTT, of San Francisco, recommends the following formula as affording good results as a substitute for J. Collis Browne's "Chlorodyne." He calls it "Compound Elixir of Chloroform."

℞ Muriate of morphia.....	½	grain.
Hydrate of chloral.....	½	drachm.
Chloroform	½	"
Tinct. of cannabis indica.....	20	minims.
Tinct. of capsicum.....	20	"
Dil. hydrocyanic acid.....	20	"
Ess. of peppermint.....	10	"
Comp. syrup of sarsaparilla.....	1	ounce.

Mix. Dose, one drachm.—*Drug. Cir.*

Papier Fayard-Blayn, Papier dit chimique—Chemisches Papier—chemical paper.—A piece of very fine silk paper 40 centimeters long, 30 cm. broad, spread with melted and burnt miniumpflaster without camphor [empl. fuscum, Ph. G.]. It smells like lead plaster, and generally contains excess of minium.—HAHN, *Analys. of Prop. Prepar.*

Ess-Bouquet.—

1. Powd. orris root.....oz. 1.
Pure alcohol.....fl. oz. 8.
Digest for eight days; filter and add:
Tinct. of ambergris.....fl. oz. ½.
Oil of rose.....gtt. 8.
" bergamot..... .....gtt. 10.
" thyme.....gtt. 2.

The tincture of ambergris is prepared by macerating 60 grs. of ambergris, and six grs. of musk with 5 fl. oz. of pure alcohol.

2. Powd. orris root.....oz 4.
Pure alcohol.....fl. oz. 10.
Digest 30 days, filter and add:
Musk.....gr. 4½.
Vanilla.....gr. 45.
Digest again for 30 days, filter and add:
Oil of rose.....gtt. 8.
" orange flowers.....gtt. 28.

Diluted with 3 to 5 times its weight of pure alcohol, this yields a fine Eau de Cologne.

3. Oil of rose.....gtt. 2.
" bergamot..... " 6.
" orange flowers..... " 2.
" bitter almonds..... " 1.
" Ceylon cinnam..... " 2.
Tincture of ambergris..... " 6.
" " musk..... " 8.
" " vanilla..... " 7.
Bals. of Peru..... " 4.
Tincture of orris root.....fl. oz. 1.

—*Pharmac. Zeitung*, No. 60.

Holloway's Pills.—A thousand pills contain aloes, 40 g.; rhubarb, 20 g.; cinnamon, 5 g.; cardamom, 5 g.; ginger, 20 g.; saffron, 2.5 g.; Glauber salts, 5 g.; potassium sulphate, 10 g.; and a sufficient quantity of confection of roses.—*Hager.*

According to Dorvault, 144 pills contain aloes, 4 g.; rhubarb, 1.7 g.; pepper, .45 g.; saffron and Glauber salts, of each, .2 g.

ITEMS.

The International Medical Congress (seventh session) is to meet this year in London, and will be in session from the 3d to the 9th of August inclusive, a reception of welcome being held on the evening of the 2d. The meetings will be held in the halls of the University of London and in Burlington House. A museum for objects of professional interest will be open during the session, and the meeting will be divided into fifteen sections. William MacCormac, the Secretary-General, to whom all communications should be addressed (13 Harley street, London). Section XV., on Materia Medica and Pharmacology, consists of Prof. T. R. Fraser, of Edinburgh, *President;* Dr. Lauder Brunton and Prof. Sidney Ringer, *Vice-presidents:* and Profs. E. B. Baxter and F. T. Roberts, *Secretaries.*

California College of Pharmacy.—The annual commencement of this College took place on December 7th, 1880, at B'nai B'rith Hall, San Francisco. The address to the graduating class was delivered by Rev. Wm. H. Platt, D.D. Prof. J. Le Conte, A.M., M.D., President of the University of California, conferred the degree of Graduate in Pharmacy upon eight gentlemen. Of these, Mr. Sam. Oberdeener received, as first prize, a gold medal, donated by Mr. A. Sommer, Ph.G.; Mr. Felix Lengfeld received, as second prize, a set of Reagents, donated by Wm. Geary, ex-President of the College: and Mr. Wm. Parks Morrison received, as third prize, a sum of $20 (or equivalent in books), donated by Mr. Carl D. Zeile.

The Committee on Proprietary Goods of the Western Wholesale Drug Association, reported, at the meeting held in November, that the sales of these goods amounted to 21 per cent of a year's business, and that only about 5 per cent profit was realized on them. They are hard to work off when old or in light demand, and they interfere with other and more profitable departments of the trade.

The Alumni Association of the N. Y. College of Pharmacy will have a stated meeting at the College at 8 P.M., on the 12th inst., to which all alumni of the school are invited. A paper will be read on Percolation and Repercolation, as applied to the Preparations of the Pharmacopœia.

The British Duties on Patent Medicines during the year ending March 1st, 1880, amounted to £133,668 against £130,691 during the previous year.

Commercial Taxes in the United States and Canada.—The following are some of the taxes imposed by States and cities on commercial travellers in this country.

Louisiana, $100 per annum, and a separate tax in several of the cities; District of Columbia, $300 per annum; Texas, $200 per annum; Virginia, $100 per annum; Charleston, $10 per week; California is free of tax, but San Francisco imposes a tax of $25 to $100 per quarter, in proportion to the business transacted, the lowest rate named permitting only sales to the amount of $20,000 per quarter. Quebec imposes a tax of $60 per annum; Halifax, $100 per annum, and lower rates exist in several towns of Nova Scotia and New Brunswick. In British Columbia, commercial travellers are not taxed, but all wholesale traders are required to pay $50 for six months, and retailers, $5 for the same period.

No license is required in New York, Pennsylvania, Illinois, Ohio, New Jersey, Massachusetts, Indiana, nor in several others. In Maryland and Mississippi, the Courts have decided that such a tax is illegal. Ontario, New Foundland, Prince Edwards Island, and Manitoba have no tax.—*Chem. and Drug.*

The Smyrna Opium Market.—A correspondent of the *Chemist and Druggist* writes under the date of Oct. 3d: "Our new opium up to this has made but a poor appearance. The experts who visit and pronounce on the qualities have set aside two-fifths of it as chiquints and refuse, and the other three-fifths, with the exception of a very little, is scarcely up to first qualities. The really good parcels are being withheld, and the bad and indifferent only disposed of, so that a merchant wishing to acquire, say ten cases of really good stuff, would have to buy twenty baskets in lieu of twelve or thirteen to pick that amount from.

Iowa State Pharmaceutical Association.—The second annual meeting of the Iowa State Pharmaceutical Association will be held at Des Moines, Tuesday and Wednesday, February 8th and 9th, 1881.

The Executive Committee have made arrangements for an exhibition of all articles appertaining to the drug business, such as chemicals, druggists' sundries, chemical and laboratory instruments, and all articles handled and sold by druggists, excepting patent medicines. Exhibitors are requested to correspond with the Local Secretary, A. H. Miles, Des Moines, Iowa, who will assign space and receive goods sent to his care. Freight should be prepaid or arrangements made with Local Secretary to pay same.

The large attendance at the first annual meeting outnumbered those of any State Pharmaceutical Association. The arrangements now being perfected by the officers and the associated druggists of the city of Des Moines bespeaks for the forthcoming meeting a still larger gathering and a more interesting and enjoyable time.

First-class hotel accommodations for members and their families have been secured at $2 per day. The Committee on Railroad Transportation hope to secure a reduction of railroad fare in time to announce same in the circular of the Permanent Secretary, H. W. Dodd, Fort Madison, Iowa, which will contain further information concerning meeting and arrangements. All interested are cordially invited to attend.

PHARMACEUTICAL CALENDAR.—Jan.

N. B.—The officers of Societies, Colleges of Pharmacy, Pharm. Associations, etc., will oblige us by forwarding schedules of their meetings, lists of officers, and any changes that may be desirable.

Date.	Society Meetings.
Mon. 3d.	Erie County Ph. Ass.—Meet.
	Pittsburg Coll. Ph.—Quart. Meet.
Tues. 4th.	Phila. Coll. Pharm.—Trust. Meet.
	Maryland Coll. Ph.—Trust. Meeting.
	Davenport (Iowa) Pharm. Assoc.—Quar. M.
Thurs. 6th.	N. Y. Coll. Ph.—Trust. Meet.
	Louisville Coll. Ph.—Trust. Meet.
	Massach. Coll. Ph.—Trust. Meet.
Fri. 7th.	Cleveland Pharm. Assoc—Bi-monthly M.
Mon. 10th.	Rhode Island Pharm. Assoc.—Ann. Meet. at Providence.
Tues. 11th.	Pittsburg Coll. Ph.—Trust. Meet.
	Chicago Coll. Ph.—Trust. Meet.
	St. Louis Coll. Pharm.—Pharm. Meet.
	Kings Co. Pharm. Soc.—Meet.
Wed. 12th.	Cincinnati Coll. Ph.—Meet. (Election).
	Cincinnati Coll. Ph.—Annual Meet.
	New York Coll. Ph.—Alumni Meet.
Thurs. 13th.	Newark Pharm. Assoc.—Meet.
	Louisville Coll. Ph.—Directors' Meet.
	Alumni Assoc., Phila. Coll. Ph.—Ph. Meet.
	Maryland Coll. Ph.—Meet. (Election).
	N. Y. Germ. Apoth. Soc.—Annual Meet.
Satur. 15th.	Rock Co. (Wis.) Pharm. Soc.—Annual Meet.
Tues. 18th.	Phila. Coll. Ph.—Pharm. Meet.
	St. Louis Coll. Pharm.—Trust. Meet.
	" " " .—Alumni Meet.
Thurs. 20th.	N. Y. Coll. Pharm.—Quarterly Meet.
	N. J. Board of Pharmacy.—Quart. Meet. Trenton, 11 A.M., Board of Trade rooms.

81.

uints
cep-
ities.
bad
wish-
ould
en to

-The
tical
and

s for
drug
nical
and
hibi-
ecre-
ssign
ould
ry to

out-
tion.
s and
s be-
ther-

their
mit-
educ-
n the
Fort
ation
ested

n.

nacy,
rding
anges

ar.M.

M.
Meet.

.

Meet.
eet.
Meet.

t.

Meet.
ooms.